Astronomy
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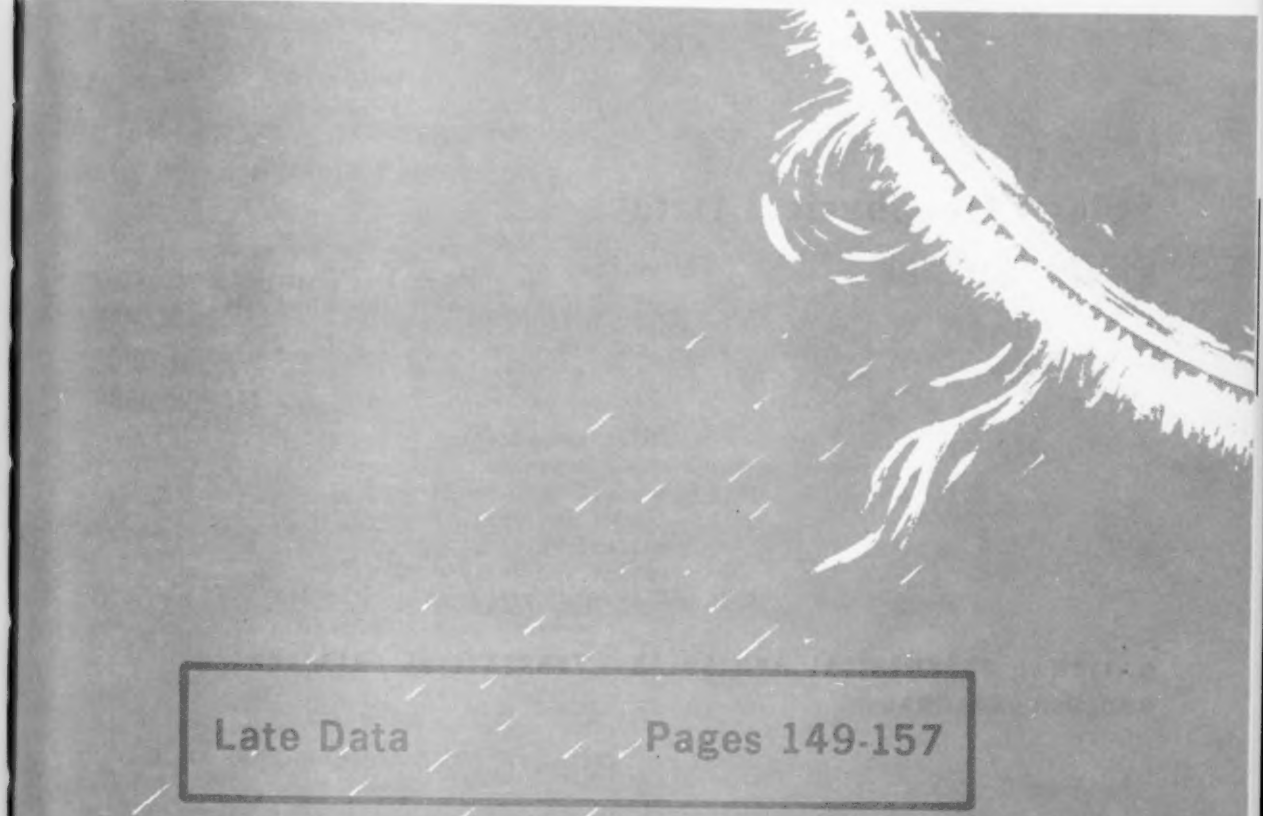
MAY 1980 NUMBER 429 -- Part I

P-A STACKS
JUL 30 1980

Solar-Geophysical Data prompt reports

Data for April 1980 -- March 1980

Explanation of Data Reports Issued as Number 426 (Supplement) February 1980



Late Data Pages 149-157

noaa NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION / ENVIRONMENTAL DATA AND INFORMATION SERVICE / BOULDER, COLORADO

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Solar - Geophysical Data

NO. 429 MAY 1980

Part I (Prompt Reports)

DATA FOR
APRIL 1980
MARCH 1980

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To standardize referencing these reports in the open literature, the following format is recommended: Solar-Geophysical Data, 426 Part I (or Part II), pages, February 1980, U.S. Department of Commerce (Boulder, Colorado, U.S.A. 80303).

SOLAR-GEOPHYSICAL DATA

No. 429

Issued in two parts

Helen E. Coffey, Editor

J. Virginia Lincoln, Chief
Solar-Terrestrial Physics Division

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Notes:

"418A 48" listed under 1979 Apr means that the sunspot drawings for April 1979 were contained in *Solar-Geophysical Data* Number 418 - Part I, beginning on page 48.

A = Part I, B = Part II.

--- = no data available.
blank = data not yet received.

SGD 429 Part I (Prompt)

APRIL 1980 DATA

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ALERT PERIODS

INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE

APRIL 1980

PRESTO MESSAGES (THE RAPID REPORT OF MAJOR EVENTS).

02 APRIL 1980 BOULDER 02/2056Z SOFLARE M2/2B N28W19 02/1906Z DURATION 69 MINUTES.
03 APRIL 1980 BOULDER 03/0250Z SOFLARE M2/2B N10W50 03/0120Z DURATION 28 MINUTES.
TOYOKAMA 03/1200Z TENFLARE 1200 UNITS 03/0633Z DURATION 90 MINUTES.
BOULDER 03/1415Z SOFLARE M2/1B N24W19 03/0655Z DURATION 84 MINUTES.
TENFLARE 03/0721Z 1000 FLUX UNITS DURATION 50 MINUTES.
04 APRIL 1980 BOULDER 04/1716Z SOFLARE M5/2B N24W34 04/1457Z DURATION 77 MINUTES.
SUSPECTED PROTON FLARE. MAGSTORM EXPECTED DUE TO FLARE.
TENFLARE 04/1435Z 670 FLUX UNITS DURATION 77 MINUTES.
06 APRIL 1980 TOYOKAWA 06/0554Z TENFLARE 06/0403Z 289 FLUX UNITS DURATION 40 MINUTES.
BOULDER 06/1630Z MAGSTORM IN PROGRESS FOLLOWING SSC AT 06/1058Z.
SOFLARE X2/1B N12E15 06/1417Z DURATION 21 MINUTES.
TENFLARE 680 FLUX UNITS 06/1418Z DURATION 27 MINUTES.
08 APRIL 1980 TOYOKAMA 08/0350Z TENFLARE 100 FLUX UNITS DURATION 30 MINUTES.
09 APRIL 1980 SYDNEY 09/0520Z SUDDEN COMMENCEMENT 20 GAMMAS 09/0508Z.
10 APRIL 1980 KAKIOKA 10/0115Z MAGSTORM 09/0508Z.
12 APRIL 1980 BOULDER 12/2330Z SOFLARE M1/2B S17E48 12/2245Z DURATION 20 MINUTES.
29 APRIL 1980 BOULDER 29/1350Z TENFLARE 255 FLUX UNITS 29/1250Z DURATION 40 MINUTES.
30 APRIL 1980 TOYOKAMA 30/0434Z TENFLARE 170 UNITS 30/0335Z IN PROGRESS AT EAST LIMB.

SUMMARY OF THE GEOALERT WWA MESSAGES

Message serial number	Date of issue	Date of observation	Wolf number	10 cm solar flux	A index	Active Regions: Location Lat-Long	Flares: Total	Flares: M	Flares: X	Outstanding events	Forecasts: Date	Forecasts: Location Lat-Long	Forecasts: Desc*	Alert Situations
092	01	31	187	190	014	N09W45	0	0	0		01	N09W45	Q	SOLALERT MINOR 01
						N14W43	1	0	0			N14W43	E	MAGQUIET
						S28W33	0	0	0			S28W33	E	
						N24W30	0	0	0			N24W30	Q	
						N11W29	2	0	0			N11W29	E	
						S13W00	0	0	0			S13W00	Q	
						N26E07	4	0	0			N26E07	E	
						S08E07	1	0	0			S08E07	Q	
						N07E33	0	0	0			N07E33	Q	
						S11E48	0	0	0			S11E48	Q	
093	02	01	184	182	006	N14W58	0	0	0		02	N14W58	Q	SOLNIL
						N08W58	0	0	0			N08W58	Q	MAGQUIET
						S28W47	0	0	0			S28W47	Q	
						N25W42	0	0	0			N25W42	Q	
						N13W41	2	0	0			N13W41	E	
						S13W11	0	0	0			S13W11	Q	
						N26W05	4	0	0			N26W05	E	
						S07W04	0	0	0			S07W04	Q	
						N08E22	1	0	0			N08E22	Q	
						S11E37	0	0	0			S11E37	Q	
094	03	02	176	184	005	N08W74	0	0	0	PRESTO BOULDER	03	N08W74	Q	SOLQUIET
						S28W61	0	0	0	02/2056Z SOFLARE		S28W61	Q	MAGQUIET
						N25W57	0	0	0	M2/2B N28W19		N25W57	Q	
						N13W56	2	0	0	02/1906Z DURATION		N13W56	Q	
						N13W32	0	0	0	69 MINUTES.		N13W32	Q	
						S13W24	1	0	0			S13W24	Q	
						N26W17	6	1	0			N26W17	E	
						N09E07	0	0	0			N09E07	Q	
						S11E22	0	0	0			S11E22	Q	
						N14E65	0	0	0			N14E65	Q	
						N23E73	2	0	0			N23E73	E	
095	04	03	178	176	008	N08W85	0	0	0	PRESTO BOULDER	04	N08W85	Q	SOLALERT 05/07
						N14W81	0	0	0	03/0250Z SOFLARE		N14W81	Q	MAGQUIET
						S28W75	0	0	0	M2/2B N10W50		S28W75	Q	
						N25W70	0	0	0	03/0120Z DURATION		N25W70	Q	
						N14W66	2	1	0	28 MINUTES. PRESTO		N14W66	E	
						S14W38	0	0	0	BOULDER 03/1415Z		S14W38	E	
						N26W30	3	1	0	SOFLARE M2/1B		N26W30	A	
						N08W05	0	0	0	N24W19 03/0655Z		N08W05	Q	
						S11E09	0	0	0	DURATION 84 MIN-		S11E09	Q	
						N14E54	0	0	0	UTES. TENFLARE		N14E54	Q	
						N22E61	2	0	0	03/0712Z 1000 FLUX		N22E61	E	
										UNITS DURATION 50				
										MINUTES.				
096	05	04	173	192	010	S13W50	4	0	0	PRESTO BOULDER	05	S13W50	E	SOLALERT 06/XX
						N27W42	6	1	0	04/1716Z SOFLARE		N27W42	A	MAGALERT 06/XX
						N08W18	0	0	0	M5/2B N24W34		N08W18	Q	
						S10W04	0	0	0	04/1457Z DURATION		S10W04	Q	
						N13E30	1	0	0	77 MINUTES. TEN-		N13E30	E	
						N14E40	0	0	0	FLARE 04/1435Z 670		N14E40	Q	
						N22E48	3	0	0	FLUX UNITS DURATION		N22E48	E	
										77 MINUTES. SUSPECT-				
										ED PROTON FLARE.				
										MAGSTORM EXPECTED				
										DUE TO FLARE.				
097	06	05	201	223	090	S14W63	2	0	0		06	S14W63	E	SOLALERT 06/07
						N27W56	4	0	0			N27W56	A	MAGALERT 06/07
						S10W17	0	0	0			S10W17	Q	
						N12E17	7	2	0			N12E17	A	
						N14E26	0	0	0			N14E26	Q	
						N22E34	1	0	0			N22E34	A	
						N20E66	0	0	0			N20E66	Q	
						S20E75	0	0	0			S20E75	Q	
098	07	06	205	238	024	S15W76	1	0	0	PRESTO BOULDER	07	S15W76	E	MAJOR FLARE ALERT 07/09
						N27W68	2	0	0	06/1630Z MAGSTORM IN		N27W68	A	N12E04 MAGALERT MINOR 07/09
						N09W46	0	0	0	PROGRESS FOLLOWING		N09W46	Q	
						S10W30	0	0	0	SSC AT 06/1058Z. SO-		S10W30	Q	
						N12E04	8	3	1	FLARE X2/1B N12E15		N12E04	P	
						N14E11	0	0	0	06/1417Z DURATION 21		N14E11	Q	
						N22E20	0	0	0	MINUTES. TENFLARE		N22E20	A	
						N20E51	0	0	0	680 FLUX UNITS		N20E51	Q	
						N36E64	0	0	0	06/1418Z DURATION 27		N36E64	Q	
						S20E66	1	0	0	MINUTES.		S20E66	Q	
						S29E81	0	0	0			S29E81	Q	

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099	08	07	233	243	015	S14W89	1	0	0		08	S14W89	Q	MAJOR FLARE ALERT 08/09 N12W10
						N27W82	3	0	0			N27W82	E	MAGALERT MINOR 08/09
						S10W44	0	0	0			S10W44	Q	
						N12W10	7	2	0			N12W10	A	
						N14W01	0	0	0			N14W01	Q	
						S15E07	0	0	0			S15E07	Q	
						N22E08	3	0	0			N22E08	E	
						N20E38	2	0	0			N20E38	Q	
						N35E54	0	0	0			N35E54	Q	
						S19E55	1	0	0			S19E55	Q	
						S29E67	3	0	0			S29E67	E	
100	09	08	206	241	013	S10W58	0	0	0	PRESTO TOYOKAWA	09	S10W58	Q	SOLALERT 09/XX
						N11W23	4	1	0	08/0350Z TENFLARE		N11W23	E	MAGALERT MINOR 09/10
						N22W07	7	0	0	100 FLUX UNITS DU-		N22W07	E	
						S11E06	0	0	0	RATION 30 MINUTES.		S11E06	Q	
						N37E41	0	0	0	A SUDDEN COMMENCE-		N37E41	Q	
						S19E41	1	0	0	MENT OCCURRED		S19E41	Q	
						S29E58	3	1	0	08/2335Z 28 GAMMAS		S29E58	Q	
						S08E67	6	0	0	BOULDER.		S08E67	Q	
						N10E76	0	0	0			N10E76	Q	
101	10	09	292	247	22	S07W91	1	0	0	PRESTO SYDNEY	10	S07W91	Q	SOLALERT 10/XX
						S15W65	0	0	0	09/0520Z SUDDEN		S15W65	Q	MAGNIL
						S37W52	0	0	0	COMMENCEMENT 20		S37W52	Q	
						N12W37	4	0	0	GAMMAS 09/0508Z		N12W37	A	
						N15W29	2	0	0	PRESTO KAKIOKA		N15W29	Q	
						S15W21	0	0	0	10/0115Z MAGSTORM		S15W21	Q	
						N22W20	6	0	0	09/0508Z.		N22W20	A	
						S13W03	0	0	0			S13W03	Q	
						N37E27	0	0	0			N37E27	Q	
						S19E28	0	0	0			S19E28	Q	
						S30E48	2	0	0			S30E48	E	
						S08E54	5	1	0			S08E54	E	
						N10E64	1	0	0			N10E64	Q	
102	11	10	304	248	23	N12W49	9	2	0		11	N12W49	A	SOLALERT 11/XX
						N23W32	2	0	0			N23W32	A	MAGALERT 11/XX
						N24W14	0	0	0			N24W14	Q	
						N18W06	0	0	0			N18W06	Q	
						S20E01	0	0	0			S20E01	Q	
						S20E15	1	0	0			S20E15	E	
						S30E32	2	0	0			S30E32	A	
						S08E40	5	0	0			S08E40	E	
						N08E51	0	0	0			N08E51	Q	
103	12	11	250	249	023	S31W82	0	0	0		12	S31W82	Q	SOLALERT 12/XX
						N12W63	5	0	0			N12W63	A	MAGALERT 12/XX
						N23W44	6	1	0			N23W44	A	
						S10W03	0	0	0			S10W03	Q	
						S20E03	2	0	0			S20E03	E	
						S30E23	5	0	0			S30E23	A	
						S08E28	2	0	0			S08E28	E	
						N08E38	0	0	0			N08E38	Q	
						N19E64	0	0	0			N19E64	Q	
104	13	12	191	244	020	N12W79	7	1	0	PRESTO BOULDER	13	N12W79	A	SOLALERT 13/XX
						N23W58	4	0	0	12/2330Z SOFLARE		N23W58	A	MAGNIL
						S19W11	3	0	0	M1/2B S17E48		S19W11	E	
						S31E08	6	0	0	12/2245Z DURATION		S31E08	A	
						S08E14	2	1	0	20 MINUTES.		S08E14	A	
						N09E25	0	0	0			N09E25	Q	
						S18E45	2	1	0			S18E45	E	
						N19E52	0	0	0			N19E52	Q	
105	14	13	253	231	013	N12W86	5	1	0		14	N12W86	A	SOLALERT 14/15
						N24W70	1	0	0			N24W70	E	MAGQUIET
						N17W38	0	0	0			N17W38	Q	
						S19W22	1	0	0			S19W22	E	
						S30W03	3	0	0			S30W03	A	
						S08E02	5	0	0			S08E02	A	
						S18E33	0	0	0			S18E33	Q	
						N19E34	3	0	0			N19E34	E	
						N14E40	8	0	0			N14E40	A	
106	15	14	250	225	005	N24W83	0	0	0		15	N24W83	E	SOLALERT 15/XX
						S23W51	0	0	0			S23W51	Q	MAGQUIET
						S20W37	0	0	0			S20W37	E	
						S31W17	3	1	0			S31W17	A	
						S08W12	10	0	0			S08W12	A	
						S17E18	4	0	0			S17E18	E	
						N19E20	2	0	0			N19E20	E	
						S26E24	0	0	0			S26E24	Q	
						N13E24	2	0	0			N13E24	E	

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107	16	15	257	207	015	N23W93	0	0	0		16	N23W93	Q	SOLALERT 16/18
						S23W62	0	0	0			S23W62	Q	MAGQUIET
						S08W60	0	0	0			S08W60	Q	
						S21W50	0	0	0			S21W50	Q	
						S31W29	1	1	0			S31W29	E	
						S08W25	1	0	0			S08W25	E	
						N19E06	2	1	0			N19E06	A	
						S18E06	2	1	0			S18E06	E	
						S26E06	0	0	0			S26E06	Q	
						N13E11	1	0	0			N13E11	E	
						S28E12	0	0	0			S28E12	Q	
						S15E85	0	0	0			S15E85	Q	
108	17	16	172	191	010	S20W62	1	0	0		17	S20W62	Q	SOLNTL
						S30W40	5	0	0			S30W40	Q	MAGQUIET
						S08W36	2	0	0			S08W36	E	
						S25W13	0	0	0			S25W13	Q	
						S17W08	1	0	0			S17W08	Q	
						N18W05	6	1	0			N18W05	E	
						N14W03	4	0	0			N14W03	Q	
						S27W03	4	0	0			S27W03	E	
						S13E65	1	0	0			S13E65	Q	
109	18	17	190	190	008	S20W76	0	0	0		18	S20W76	E	SOLQUIET
						S31W54	1	0	0			S31W54	E	MAGQUIET
						S08W51	0	0	0			S08W51	E	
						N19W21	1	0	0			N19W21	E	
						N14W16	0	0	0			N14W16	Q	
						S27W16	2	0	0			S27W16	E	
						S14E53	0	0	0			S14E53	Q	
						S18E58	0	0	0			S18E58	Q	
						S12E80	0	0	0			S12E80	E	
110	19	18	185	200	005	S20W93	0	0	0		19	S20W93	Q	SOLQUIET
						S08W68	2	0	0			S08W68	Q	MAGQUIET
						S30W66	0	0	0			S30W66	Q	
						N19W38	2	0	0			N19W38	E	
						N13W30	1	0	0			N13W30	E	
						S27W30	0	0	0			S27W30	Q	
						S14E38	1	0	0			S14E38	Q	
						S18E45	0	0	0			S18E45	E	
						S27E52	0	0	0			S27E52	Q	
						S12E70	0	0	0			S12E70	E	
						N24E73	0	0	0			N24E73	Q	
						N10E79	0	0	0			N10E79	Q	
111	20	19	188	215	004	S08W83	1	0	0		20	S08W83	Q	SOLQUIET
						S31W76	1	0	0			S31W76	E	MAGQUIET
						S16W66	0	0	0			S16W66	Q	
						N12W44	1	0	0			N12W44	E	
						S27W42	0	0	0			S27W42	E	
						N08W05	1	0	0			N08W05	Q	
						S14E24	0	0	0			S14E24	Q	
						S17E32	1	0	0			S17E32	E	
						N23E57	1	0	0			N23E57	Q	
						S12E58	1	0	0			S12E58	E	
						N11E66	0	0	0			N11E66	Q	
112	21	20	239	214	004	S32W89	0	0	0		21	S32W89	E	SOLQUIET
						S16W80	0	0	0			S16W80	Q	MAGQUIET
						N11W58	0	0	0			N11W58	E	
						S28W55	0	0	0			S28W55	E	
						N07W18	0	0	0			N07W18	Q	
						S18E18	0	0	0			S18E18	E	
						S27E27	0	0	0			S27E27	Q	
						N23E43	0	0	0			N23E43	Q	
						N15E45	0	0	0			N15E45	Q	
						S12E45	1	0	0			S12E45	E	
						N11E53	0	0	0			N11E53	E	
						N05E60	0	0	0			N05E60	Q	
						N14E61	3	0	0			N14E61	Q	
113	22	21	189	206	004	N13W72	1	0	0		22	N13W72	E	SOLQUIET
						S27W68	0	0	0			S27W68	Q	MAGQUIET
						S24W14	0	0	0			S24W14	Q	
						S17E03	1	0	0			S17E03	Q	
						S27E12	0	0	0			S27E12	Q	
						N22E29	1	0	0			N22E29	E	
						S13E31	4	0	0			S13E31	A	
						N09E37	0	0	0			N09E37	Q	
						N04E46	0	0	0			N04E46	Q	
						N14E47	6	0	0			N14E47	E	
114	23	22	130	197	009	N16W85	0	0	0		23	N16W85	Q	SOLQUIET
						S17W11	0	0	0			S17W11	Q	MAGQUIET
						S26W02	0	0	0			S26W02	Q	
						N22E17	1	0	0			N22E17	Q	
						S13E18	1	0	0			S13E18	E	
						N09E22	0	0	0			N09E22	Q	
						N14E33	1	0	0			N14E33	Q	

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						Location	No of Flares				Date	Location	Desc*	
						Lat-Long	Total	M	X			Lat-Long		
115	24	23	131	184	007	S17W25	0	0	0		24	S17W25	Q	SOLQUIET
						N23E03	0	0	0			N23E03	Q	MAGQUIET
						S30E03	0	0	0			S30E03	Q	
						S12E04	0	0	0			S12E04	E	
						N10E09	0	0	0			N10E09	Q	
						N14E20	1	0	0			N14E20	Q	
						S23E57	1	0	0			S23E57	Q	
116	25	24	146	184	007	S17W38	0	0	0		25	S17W38	Q	SOLQUIET
						S13W11	5	0	0			S13W11	E	MAGQUIET
						N23W11	0	0	0			N23W11	Q	
						S30W10	2	0	0			S30W10	E	
						N11W03	0	0	0			N11W03	Q	
						N04E11	0	0	0			N04E11	Q	
						S08E68	0	0	0			S08E68	Q	
117	26	25	190	184	011	N18W50	0	0	0		26	N18W50	Q	SOLQUIET
						S13W23	0	0	0			S13W23	E	MAGQUIET
						S30W23	5	0	0			S30W23	E	
						N22W21	0	0	0			N22W21	Q	
						N12W16	0	0	0			N12W16	Q	
						N14W03	0	0	0			N14W03	Q	
						S16E14	0	0	0			S16E14	Q	
						S22E31	0	0	0			S22E31	Q	
						S08E54	0	0	0			S08E54	Q	
						S17E70	4	0	0			S17E70	Q	
						N09E73	0	0	0			N09E73	Q	
118	27	26	190	184	008	N22W37	0	0	0		27	N22W37	Q	SOLQUIET
						S14W36	3	0	0			S14W36	E	MAGQUIET
						S31W36	4	0	0			S31W36	E	
						N05W16	0	0	0			N05W16	Q	
						S16E02	0	0	0			S16E02	Q	
						S07E41	0	0	0			S07E41	Q	
						N11E43	0	0	0			N11E43	Q	
						S16E56	10	2	0			S16E56	E	
						N09E59	1	0	0			N09E59	Q	
						N06E73	0	0	0			N06E73	Q	
119	28	27	217	220	007	S14W49	6	1	0		28	S14W49	E	SOLALERT MINOR 28/XX
						N22W48	0	0	0			N22W48	Q	MAGQUIET
						S31W48	4	0	0			S31W48	E	
						S16W11	0	0	0			S16W11	Q	
						S16E05	0	0	0			S16E05	Q	
						S07E28	0	0	0			S07E28	Q	
						N12E31	0	0	0			N12E31	Q	
						S17E43	4	0	0			S17E43	E	
						N09E46	0	0	0			N09E46	Q	
						N07E63	0	0	0			N07E63	Q	
						N13E77	0	0	0			N13E77	A	
120	29	28	166	201	005	N12W64	10	0	0		29	N12W64	E	SOLNIL
						N22W60	0	0	0			N22W60	Q	MAGQUIET
						S30W60	16	1	0			S30W60	E	
						N12E18	0	0	0			N12E18	Q	
						S16E29	1	0	0			S16E29	E	
						N10E33	0	0	0			N10E33	Q	
						S12E36	0	0	0			S12E36	Q	
						N06E49	0	0	0			N06E49	Q	
						N11E68	0	0	0			N11E68	Q	
121	30	29	158	203	006	S12W76	4	1	0	PRESTO BOULDER	30	S12W76	A	SOLQUIET
						S30W72	3	0	0	29/1350Z TENFLARE		S30W72	E	MAGQUIET
						S07W33	0	0	0	255 FLUX UNITS		S07W33	Q	
						S16E16	0	0	0	29/1250Z DURATION		S16E16	Q	
						S13E16	0	0	0	40 MINUTES.		S13E16	Q	
						N10E25	0	0	0			N10E25	Q	
						N05E36	0	0	0			N05E36	Q	
						N11E56	0	0	0			N11E56	Q	
						S19E79	0	0	0			S19E79	A	
122	01	30	231	198	010	S31W88	3	0	0		01	S31W88	E	SOLQUIET
						S14W87	3	1	0			S14W87	Q	MAGQUIET
						S23W52	0	0	0			S23W52	Q	
						S07W47	1	1	0			S07W47	Q	
						N29W20	0	0	0			N29W20	Q	
						N12W09	0	0	0			N12W09	Q	
						S13E03	0	0	0			S13E03	Q	
						S17E03	0	0	0			S17E03		
						N11E11	0	0	0			N11E11	Q	
						N07E23	0	0	0			N07E23	Q	
						N12E42	1	0	0			N12E42	Q	
						S16E42	0	0	0			S16E42	Q	
						S20E66	0	0	0			S20E66	E	
						N22E75	0	0	0			N22E75	Q	

* Q=Quiet E=Eruptive A=Active P=Proton C=Caution D=Doubtful O.G.=Other Groups MF=Major Flare

RELATIVE SUNSPOT NUMBERS

ZURICH, R_z

	1979 FINAL								1980 PROVISIONAL			
DAY	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR
1	100	121	158	115	165	213	224	122	153	208	181	185
2	106	145	168	96	141	187	157	156	158	187	168	145
3	103	154	205	121	148	167	155	187	148	185	151	133
4	112	178	219	110	157	156	172	218	173	182	136	123
5	113	207	232	93	139	168	166	232	198	178	130	154
6	122	226	249	104	139	168	203	206	207	215	132	185
7	148	222	223	118	178	179	240	212	218	248	128	208
8	157	228	219	132	192	198	288	262	225	238	101	199
9	162	224	191	115	198	218	279	288	262	172	103	229
10	145	205	163	92	177	178	302	268	224	148	69	214
11	148	186	155	84	167	183	295	242	245	148	67	245
12	158	199	145	87	156	189	248	261	218	135	78	257
13	163	172	142	91	175	201	183	235	181	131	71	259
14	203	149	127	112	186	213	218	238	178	146	68	203
15	207	117	121	135	177	198	186	225	146	168	52	182
16	187	183	107	115	163	185	166	215	166	163	36	154
17	184	122	109	124	155	214	238	188	168	132	67	126
18	148	126	109	143	177	224	172	151	138	122	63	127
19	109	118	135	176	195	221	174	138	118	129	119	134
20	107	111	158	167	191	214	163	126	115	139	108	173
21	114	124	151	218	184	209	124	124	121	114	105	143
22	121	108	152	216	178	191	116	111	123	99	138	122
23	117	96	154	206	219	179	142	116	124	108	149	95
24	119	98	143	203	236	161	162	138	128	122	175	112
25	124	128	144	201	252	153	155	143	107	121	176	139
26	123	132	142	182	261	145	141	116	127	152	191	171
27	118	112	146	189	256	136	115	93	128	175	205	156
28	118	128	132	174	239	142	119	98	138	197	221	149
29	113	124	148	158	235	184	98	121	122	181	191	145
30	96	154	158	158	233	198	116	139	145		182	138
31	128		144	168		223		135	174		183	
MEAN	134.4	149.5	159.4	142.2	188.4	186.2	183.3	176.3	162.2	159.3	126.5	166.6

1978 yearly mean = 92.5

DAILY SOLAR FLUX AT 2800 MHz
OTTAWA ARO

FLUX ADJUSTED TO 1 A.U., S_a

	1979								1980			
DAY	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR
1	188.4	189.5	186.3	149.1	175.8	212.8	211.6	161.9	189.1	212.6*	175.7	181.9
2	179.2	206.8*	208.9*	143.9*	188.1	211.5	209.5	172.8*	199.9	217.9	172.9	181.1*
3	164.3	216.1*	213.4	145.1	188.8	204.7	207.5	195.1*	211.9*	225.7	170.2*	176.1
4	176.8	228.8*	218.1	141.7	175.3*	197.7*	214.2	221.8	212.4*	231.7	172.7*	184.3*
5	169.6	238.2	204.5	141.6	177.1	192.8*	235.5	223.4*	207.7	218.9	171.8	209.7*
6	171.1*	238.1	211.3	149.5	188.4*	195.5	273.2*	223.4	222.1	221.7	169.4	238.4*
7	178.8	238.1	207.2	151.1	186.3	197.8	286.9*	222.6	228.8	223.9*	166.3	236.1*
8	182.4*	242.7	206.7	152.7	183.6	200.3	310.1	228.9*	228.1*	218.7	164.9	241.7
9	181.3	247.4*	197.9*	157.3	187.4	209.5	314.4*	232.4	240.9*	208.2*	161.3	244.7*
10	174.7	239.9	185.9	152.1*	184.6	208.7	367.8*	238.3	253.8*	204.6*	153.9	249.8
11	178.6	229.6	178.6	154.4	181.5*	211.8	325.7*	238.6*	255.7*	213.7	147.8	249.9
12	184.2	208.3	178.1	144.8	181.7	216.4	294.4	232.3	245.1*	213.7	138.6	245.6
13	186.6	193.7	161.4	155.8	186.1	239.1	272.7	231.7	221.6	217.9	144.6	232.8
14	182.8	185.7	154.7*	158.2*	192.6*	236.4	256.4	238.3	203.8	201.8	141.2	226.3
15	181.9	176.8	151.1	167.6	193.8	238.7	239.7*	231.8	200.8	201.2*	139.3	206.1*
16	176.4	167.5	143.6	164.8	196.3*	232.3	238.6	216.3	188.6	208.2	137.3	192.4
17	187.7	158.1	142.7	165.8	202.7*	226.8	231.8	202.2	186.9	182.8*	142.9	191.9
18	171.3*	152.6	141.2	180.8	215.7	236.8	231.9	187.4	177.5	180.8*	147.4	201.4
19	161.5	146.2	143.6	186.4	218.1*	237.3*	214.8	183.8	164.4	177.3	162.3	214.5*
20	155.6	151.5	146.6	204.2*	213.9*	236.7*	205.9	180.8*	156.5	174.7	162.1	215.8
21	155.7	148.9	143.7*	207.6*	218.4	238.1	189.8	176.7*	153.4	169.6	162.4	207.7
22	156.5*	141.1	155.7	223.2	216.5	221.9	182.5	175.3	158.2*	167.3	162.5	199.2
23	156.8	139.8	163.1*	218.6	224.2*	214.9*	183.2	168.6	166.7	168.1	172.4*	186.2
24	159.2*	141.2	168.6	225.2	238.7	225.6*	175.2*	168.2	171.1*	157.2*	172.4	186.3
25	153.3*	147.8	164.5	229.3*	235.5	215.2	165.8*	162.8	171.3*	165.7	182.5*	185.9
26	149.1	153.7	165.6	223.3	229.9*	202.9	161.6	159.7	178.8*	169.8	185.2	186.6
27	149.4	158.5	159.1*	212.8	228.7*	211.2	155.7	153.6*	190.6*	173.2	195.3*	208.6*
28	149.2	159.1	158.1	214.2	233.8	210.8	158.1	163.1	194.8	171.7*	203.5	203.7
29	158.2	166.9	156.7	197.6	225.8	214.8	154.8	174.8	197.8	176.7*	199.9	203.5*
30	158.4	176.7*	160.3	187.8	231.9	213.7*	152.2	185.5	197.9	.	194.3*	208.9
31	174.9	.	152.4	179.9	.	214.9*	.	188.9	213.9*	.	187.2*	.
MEAN	168.9	186.8	171.4	177.8	202.3	216.4	226.8	197.2	199.6	195.1	166.5	209.3

* adjusted for burst
A = interpolated data point

DAILY SOLAR INDICES

APRIL 1980

APR 1980	YEAR DAY	BARTELS 27-DAY CYCLE NUMBER	SUNSPOT NUMBERS		OBSERVED FLUX	SOLAR FLUX ADJUSTED TO 1 A.U.								
			R_Z	$R_{A'}$	OTTAWA 2800	AFGL 15400	AFGL 8800	AFGL 4995	OTTAWA 2800	AFGL 2695	AFGL 1415	AFGL 606	AFGL 410	AFGL 245
1	92	25	185	144	182.1	517	362	200	181.9	173	142		40	
2	93	26	145	122	181.3*				181.1*					
3	94	27	133	109	176.1				176.1					
4	95	1	123	111	184.1*				184.3*					
5	96	2	154	146	209.5*	526	410	255	209.7*	220	154		80	
6	97	3	185	160	237.9*	575	461	293	238.4*	231	158		21	
7	98	4	200	176	235.6*	548	448	294	236.1*	242	150		58	
8	99	5	199	172	241.0				241.7					
9	100	6	229	195	244.0*				244.7*					
10	101	7	214	192	248.0	490	401	280	249.0	240	164		71	
11	102	8	245	214	248.7	560	417	297	249.9	244	153		58	
12	103	9	257	219	244.4				245.6					
13	104	10	259	213	231.4	544	399	254	232.8	223	157		55	
14	105	11	203	174	225.0	507	386	235	226.3	220	165		46	
15	106	12	182	139	204.7*	521	371		206.1*	206	158		43	
16	107	13	154	148	191.1	485	359	198	192.4	192	152		43	
17	108	14	126	128	190.4	538	375	202	191.9	188	141		40	
18	109	15	127	132	199.6	538	386	216	201.4	207	138		43	
19	110	16	134	155	212.6*	537	388	229	214.5*	211	140		42	
20	111	17	173	172	213.7	528	393	220	215.8	208	146		42	
21	112	18	143	148	205.6	528	406	225	207.7	198	141		46	
22	113	19	122	111	197.0	515	405	222	199.2	197	143		48	
23	114	20	95	92	184.2	516	368	208	186.2	182	140		52	
24	115	21	112	96	184.1	515	386	210	186.3	182	139		47	
25	116	22	139	111	183.7	516	396	205	185.9	183	145		48	
26	117	23	171	148	184.2	497	371	212	186.6	187	146		69	
27	118	24	156	143	197.8*	516	381	227	200.6*	195	141		66	
28	119	25	149	145	200.9	517	381	221	203.7	198	154		50	
29	120	26	145	120	200.5*	415	329	214	203.5*	179	147		45	
30	121	27	138	125	197.9				200.9		140		50	
MEAN			166.6	148.7	207.9	520	390	232	209.3	205	148		54	

* Adjusted for burst.

OBSERVED AND PREDICTED SOLAR ACTIVITY INDICES

	SUNSPOT NUMBERS						2800 MHz FLUX adjusted to 1 AU	
	Rz		Ra		Rs		Sa	
Date	Monthly Mean	Smoothed	Monthly Mean	Smoothed	Monthly Mean	Smoothed	Monthly Mean	Smoothed
May 77	18.6	24	16.0	23	25.9	29	81.4	84
Jun	38.5	26	34.4	25	40.1	31	94.5	86
Jul	21.4	29	18.3	27	28.4	33	83.7	88
Aug	30.1	33	27.6	32	31.3	36	86.4	91
Sep	44.0	39	41.9	37	47.0	40	100.9	95
Oct	43.8	46	45.5	44	42.0	45	96.3	99
Nov	29.1	52	28.4	50	36.9	50	91.6	104
Dec	43.2	57	42.8	55	44.8	54	98.9	108
Jan 78	51.9	61	48.8	59	52.6	57	106.1	111
Feb	93.6	64	90.9	61	91.1	60	141.8	113
Mar	76.5	70	73.9	66	89.5	63	140.3	116
Apr	99.7	77	97.5	72	100.5	67	150.5	119
May	82.7	83	79.6	78	99.7	71	149.7	123
Jun	95.1	89	88.0	84	96.5	75	146.8	127
Jul	70.4	97	58.1	92	84.2	82	135.2	133
Aug	58.1	104	48.1	98	64.3	90	116.9	141
Sep	138.2	108	128.1	103	110.4	96	159.6	146
Oct	125.1	111	116.0	105	107.7	111	157.1	160
Nov	97.9	113	92.8	107	98.1	113	148.2	162
Dec	122.7	118	121.0	111	121.6	116	170.0	165
Jan 79	166.6	124	164.4	116	150.2	119	196.5	168
Feb	137.5	131	136.8	123	153.0	124	199.1	172
Mar	138.0	136	132.5	128	136.7	128	184.0	176
Apr	101.5	141	95.8	133	127.0	133	175.0	180
May	134.4	147	121.8	139	120.4	139	168.9	186
Jun	149.5	153	136.4	144	138.9	144	186.0	191
Jul	159.4	156*	140.5	145	123.1	145	171.4	192
Aug	142.2	157*	125.1	144	129.2	145	177.0	192
Sep	188.4	157*	184.0	143	156.5	144	202.3	191
Oct	186.2	158	178.2	144	171.7	145	216.4	192
Nov	183.3	159(±4)*	176.5	145	182.9	146	226.8	---
Dec	176.3	159(±8)*	157.6	145	151.0	145	197.2	---
Jan 80	162.2*	157(±13)*	146.7	144	153.6	144	199.6	---
Feb	159.3*	155(±15)*	131.0	143	148.7	143	195.1	---
Mar	126.5*	154(±17)*	111.0	142	117.8	142	166.5	---
Apr	166.6*	154(±22)*	148.7	142	164.0	142	209.3	---
May	---	153(±27)*	---	141	---	141	---	---
Jun	---	149(±30)*	---	138	---	139	---	---
Jul	---	145(±35)*	---	135	---	136	---	---
Aug	---	142(±37)*	---	133	---	133	---	---
Sep	---	140(±38)*	---	131	---	132	---	---
Oct	---	139(±39)*	---	130	---	131	---	---

*An asterisk denotes a value of the observed monthly mean, or the observed 12-month running mean, or the predicted 12-month average that is based only on preliminary observations of the Zurich relative sunspot number (Rz). Parentheses enclose the 90% confidence limits. Hatched boxes enclose the most recent smoothed values; boxes not shaded enclose predicted values. Ra is the new symbol for R_A'.

SMOOTHED OBSERVED AND PREDICTED SUNSPOT NUMBERS
CYCLE 21

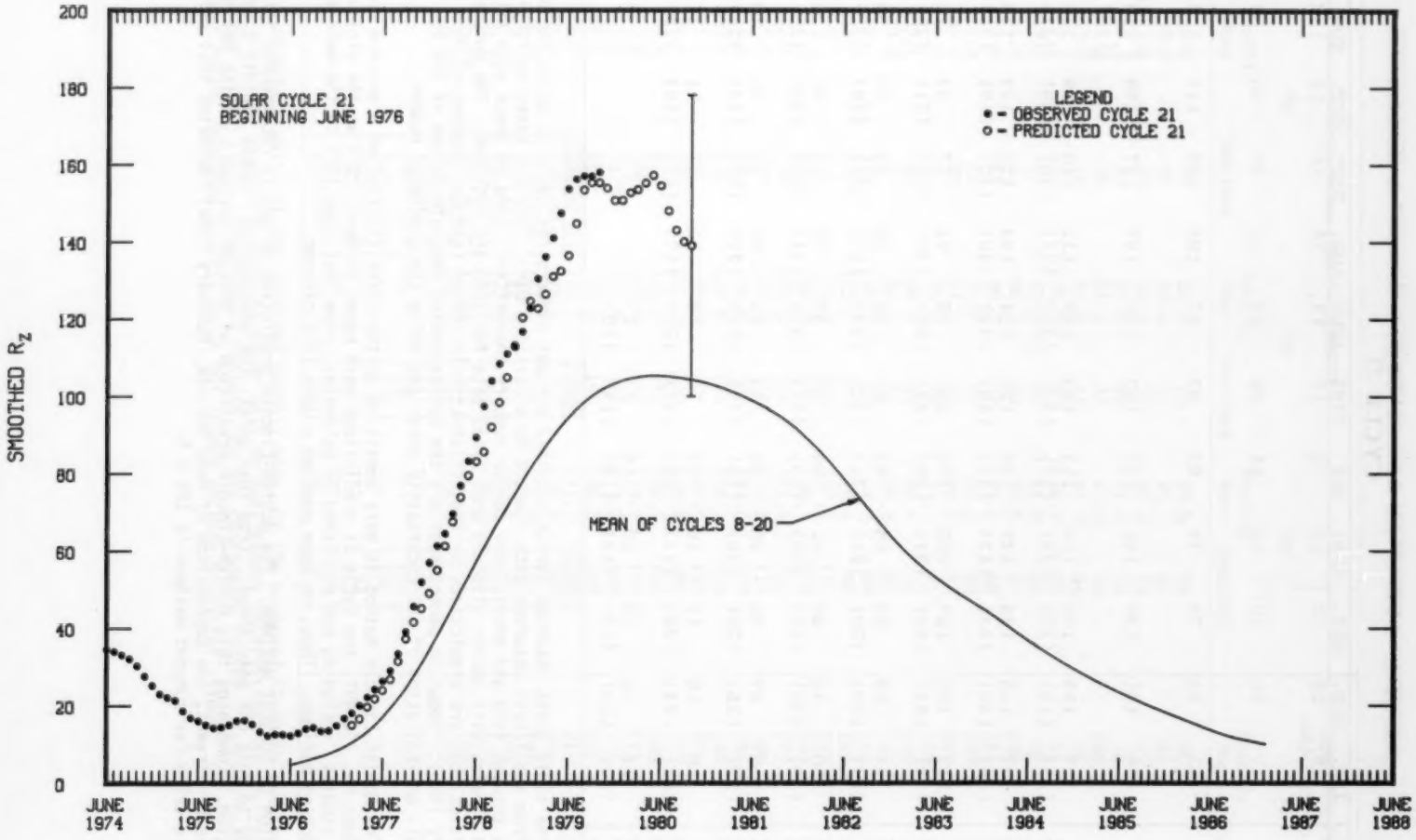
MONTH	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.
1976	15	13	12	13	12	12	13	14	14	13	13	15
1977	17	18	20	22	24	26	29	33	39	46	52	57
1978	61	64	70	77	83	89	97	104	108	111	113	118
1979	124	131	136	141	147	153	156	157	157	158	[159*	159
											[(4)	(8)
1980	157	155	154	154	153	149	145	142	140	139	138	137
	(13)	(15)	(17)	(22)	(27)	(30)	(35)	(37)	(38)	(39)	(41)	(44)
1981	137	136	134	131	128	126	124	124	123	122	119	116
	(46)	(45)	(43)	(42)	(43)	(43)	(42)	(40)	(40)	(39)	(38)	(36)
1982	113	109	107	105	102	100	96	91	87	82	78	75
	(34)	(34)	(33)	(31)	(29)	(27)	(26)	(24)	(23)	(21)	(20)	(20)
1983	71	68	66	64	62	60	58	56	54	53	52	51
	(19)	(20)	(20)	(21)	(21)	(22)	(23)	(25)	(27)	(28)	(30)	(30)
1984	50	48	45	41	38	37	37	35	33	32	31	29
	(30)	(30)	(29)	(29)	(30)	(31)	(32)	(31)	(30)	(29)	(28)	(27)
1985	28	27	26	26	25	24	23	22	21	20	19	19
	(27)	(26)	(26)	(26)	(26)	(25)	(23)	(22)	(22)	(23)	(24)	(24)
1986	18	18	17	16	14	13	12	11	11	11	11	11
	(24)	(24)	(24)	(23)	(22)	(21)	(20)	(19)	(17)	(16)	(15)	(13)
1987	11	11	12	13	14	15	17					
	(12)	(12)	(12)	(12)	(13)	(14)	(15)					

The table gives observed Zürich *smoothed* sunspot numbers for Cycle 21 up to the one calculated from the latest observed data, marked by a vertical bar. They are based on final Zürich numbers through 1979 and provisional Zürich numbers thereafter. Some of these data after the June 1976 value will change slightly when final data for 1980 are included. The numbers after the vertical bar are predictions by the McNish-Lincoln method (see *Explanation of Data Reports*, February 1980). Shown in parentheses are the corresponding absolute values of the 90% confidence interval, an indication of the uncertainty above and below the predicted number.

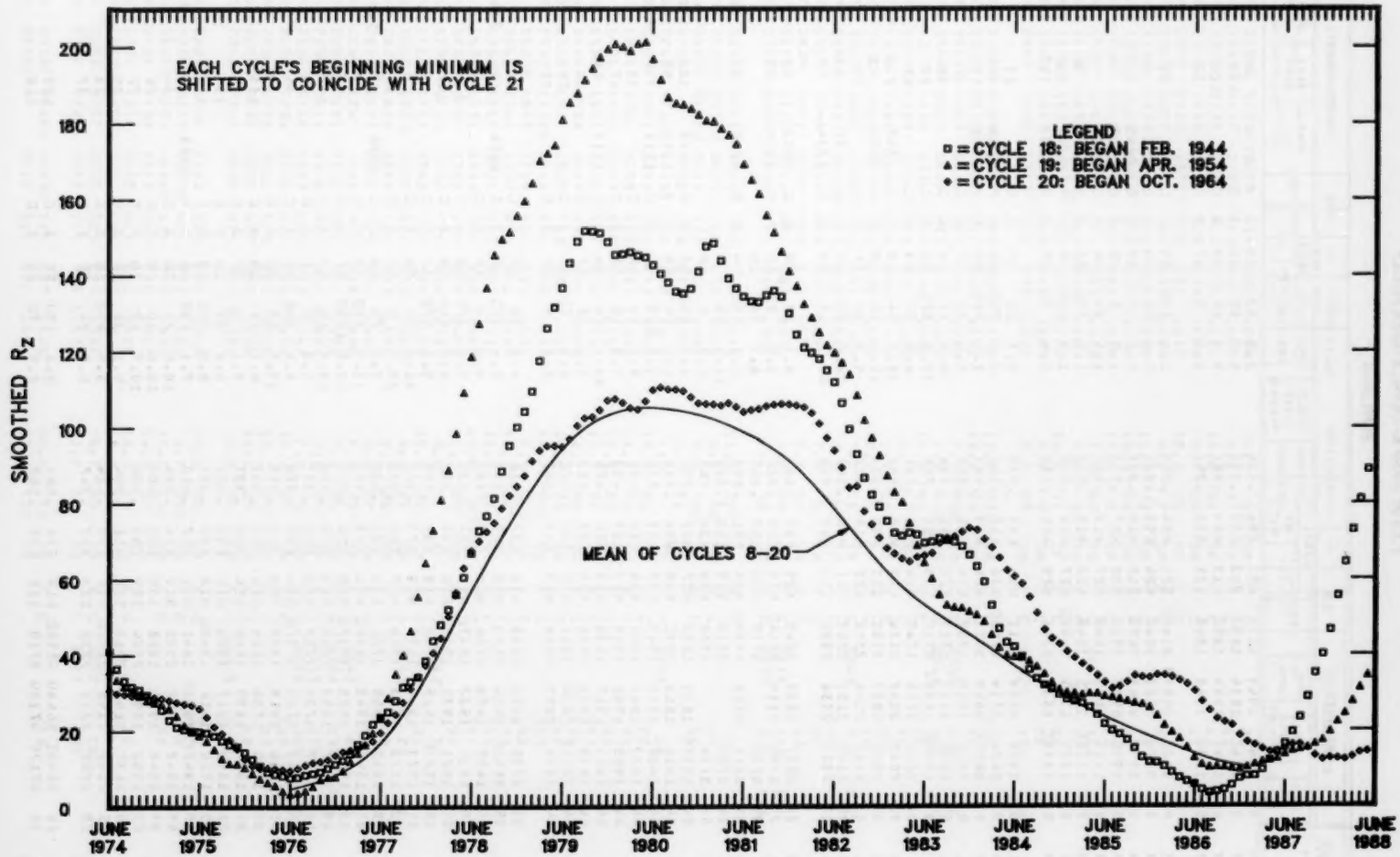
The McNish-Lincoln method is very sensitive to the identification of a minimum epoch. In SGD issues No. 390-401, the Cycle 21 predictions were based on March 1976 as the minimum epoch. Latest studies, including one published by Waldmeier, show that June 1976 is the more appropriate epoch of minimum. Thus, we have adopted a June 1976 minimum.

*PREDICTION OF SUNSPOT MAXIMUM. The McNish-Lincoln prediction method is recommended for predictions up to only one year ahead. From that point, the predictions regress rapidly toward the mean value. Combining this McNish-Lincoln prediction of sunspot maximum with the Ohl method (as done by Sargent, see *Explanation of Data Reports*, February 1980) indicates that the most probable value for sunspot maximum is 159 ± 5.

OBSERVED AND PREDICTED SMOOTHED SUNSPOT NUMBERS



SUPERPOSITION OF CYCLES 18, 19, AND 20



13
Apr 80

Hα SOLAR FLARES

APRIL 1980

OBSERV-ATORY	OBSERVED UT				LOCATION				CMP. DAY	DURATION — MIN.	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS
	DAY	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	HALE PLAGE REGION				COND.	TYPE	TIME — UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	
ATHN	01	0944	0949	1017	N23	E06	.588		1.9	33	SN	3	V	0949	66	.8	
RAMY	01	1747	1814	1852	N13	E59	.851		6.2	65	1N	3	C		198		
RAMY	01	1747	1804	1852	N13	E59	.861		6.2	65	SB	3	C		128		
RAMY	01	1839	1848	1848	S21	E02	.252		1.9	9	SF	3	C		32		
PALE	02	0128E	00003	0140D	S21	W04	.259		1.8	120	SN	1	C		50		
CATA	02	0620	0620	0648	N24	E98	1.001		9.0	20	1N	2	C	0620	84		
CATA	02	0645	0645	0650	S15	W16	.307		1.1	5	SB	2	C	0645	112	1.2	
CATA	02	0905	0905	0910	N30	W07	.603		1.9	5	SB	2	C	0905	56	.7	
CATA	02	1115	1125	1140	N27	W13	.585		1.5	25	SN	2	C	1125	84	1.1	
ATHN	02	1120E	1125	1140	N23	W13	.532		1.5	20D	SB	3	V	1125	98	1.1	
CATA	02	1335	1345	1400D	N27	W14	.590		1.5	25D	SB	2	P	1345	112	1.4	
ATHN	02	1338E	1339	1341	N25	W16	.576		1.4	3D	SN	3	V	1339	147	1.6	
PALE	03	0050	0054	0111	N14	E43	.735		6.3	21	SF	3	C		21		D
CATA	03	0636E	0714	0755D	N30	W17	.642		2.0	79D	2B	2	P	0714	674	9.1	
ATHN	03	0655E	0658	0611	N24	W19	.563		1.9	76D	SB	3	V	0658	114	1.4	
HOLL	03	1640	1640	1702	N14	E36	.658		6.4	22	SF	2	C		22		
HOLL	03	1656	1657	1713	S28	W51	.796		30.9	17	SB	3	C		58		
RAMY	03	1658E	1658U	1715D	S28	W51	.796		30.9	17D	SB	3	C		60		
HOLL	03	1708	1714	17-5	N14	E31	.681		6.0	37	SN	3	C		66		
BIGB	03	2040	2047	2134	N13	W80	.888		30.4	54	1N	2	C	2047	220	4.5	
BIGB	03	2045	2053	2101	S10	E90	1.000		10.6	16	1B	2	C	2053	60		
HOLL	03	2115	2144	2210	S25	E18	.428		5.2	55	SF	3	C		45		
BIGB	03	2150	2157	2359	N01	W90	1.000		28.2	129	1F	2	C	2157	80		
BIGB	03	2331	2334	2350	S10	E90	1.000		10.7	19	SB	2	C	2334	40		
BIGB	04	0027	0030	0049	N25	E35	.683		8.1	22	SN	2	C	0030	68		
BIGB	04	0106	0114	0114D	N15	E65	.926		8.9	8D	1N	2	P	0114	150		
ISTA	04	0705		0715	N24	E53	.665		8.3	10	SN						E
CATA	04	0710	0710	0725D	N24	E51	.650		8.1	15D	SN	2	P	0710	28	.6	
ISTA	04	0720		0810	S15	E90	1.000		11.1	50	N						A
ISTA	04	0734		0738	N28	W35	.745		1.7	4	SF						E
CATA	04	1015E	1020	1030	N27	W37	.754		1.7	15D	SB	2	P	1020	112	1.8	
ATHN	04	1016	1019	1031	N28	W34	.738		1.9	15	SB	2	V	1019	82	1.2	
BIGB	04	1458	1511	1947	N27	W35	.738		2.0	289	1B	2	C	1511	398	5.0	
RAMY	04	1832	1842	1851	N14	E12	.400		5.7	19	SN	3	C		30		
HOLL	04	1905	1906	1915	N17	E07	.413		5.3	10	SF	2	C		47		
BIGB	04	1914	1917	1930	N13	W76	.978		30.1	16	SN	2	C	1917	60		
RAMY	04	1919	1921	1956	N20	E08	.462		5.4	37	SF	3	C		30		
RAMY	04	2004E	2010	2011	N16	E27	.572		6.9	7D	SF	3	C		28		
RAMY	04	2008	2009	2014	N13	E12	.387		5.7	6	SF	3	C		31		
PALE	05	0235	0236	0245	N16	E22	.518		6.6	10	SF	3	C		21		D
ATHN	05	0602E	0604	0639	N18	E28	.599		7.4	37D	1B	3	S	0604	196	2.4	
HOLL	05	1455	1458	1506	N20	E45	.782		9.0	11	SF	3	C		40		
HOLL	05	1510	1532	1547D	N13	E04	.337		5.9	37D	SB	2	C		108		
RAMY	05	1521	1531	1535D	N14	E05	.357		6.0	14D	SB	3	C		162		D
RAMY	05	1521E	1525	1616	N19	E46	.787		9.1	57D	SF	3	C		75		
RAMY	05	1523	1544	1557	N19	E73	.971		11.1	34	SN	3	C		0		
HOLL	05	1523	1523	1529	N17	E65	.929		10.5	6	SF	3	C		27		
BIGB	05	1545	1556	1704	N11	E25	.505		7.5	79	SB	2	C	1556	170	1.9	
HOLL	05	1545	1548	1606D	N21	E73	.973		11.1	21D	1N	3	C		0		
RAMY	05	1548	1629	1737D	S10	E66	.909		10.6	109D	SF	3	C		63		
RAMY	05	1557	1558	1615	N19	E70	.958		10.9	18	1N	3	C		162		
HOLL	05	1707	1708	1712	N13	E04	.337		6.0	5	SF	3	C		21		
RAMY	05	1711	1734	1737D	N14	E09	.378		6.4	26D	SF	3	C		54		
HOLL	05	1746	1818	1829	S08	E66	.910		10.7	43	SN	3	C		30		
HOLL	05	1756	1758	1814	N14	E05	.357		6.1	18	SN	3	C		114		
HOLL	05	1837	1839	1846	S24	W09	.337		5.1	9	SF	3	C		24		
RAMY	05	1856	1917	1929	N14	E03	.351		6.0	33	SB	3	C		151		
PALE	05	1914	1916	1943D	N13	E02	.333		6.0	29D	SB	3	C		132		D
BIGB	05	1942E	1953D	2041	N11	E17	.410		7.1	59D	SB	1	P	1953	60	.9	
RAMY	05	1942	1952	2003	S10	E64	.434		10.6	21	SN	3	C		34		
PALE	05	1948	1951	1958	S09	E66	.509		10.8	10	SN	3	C		26		
HOLL	05	1952	1954	2004	S09	E65	.502		10.7	12	SN	3	C		27		
PALE	05	2137	2143	2213	S27	W11	.334		5.1	36	SF	3	C		35		
PALE	05	2140	2148	2222D	N19	E40	.724		8.9	42D	SN	3	C		28		
HOLL	05	2208	2211	2232	S23	W12	.347		5.0	24	SF	3	C		37		
MANI	06	0640E	0644U	0655D	N19	E36	.689		9.0	15D	SF	3	C		100		
MANI	06	0712E	0712U	0719	S18	E35	.589		8.9	7D	SN	3	C		120		

Hα SOLAR FLARES

APRIL 1980

OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IM-POR-TANCE	OBS.		MEASUREMENTS			REMARKS
	DAY	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	HALE PLAGE REGION	CMP. DAY	MIN.		CONG.	TYPE	TIME UT	MEAS. AREA Mil. of Disk	CORR. AREA Sq. Deg.	
RAMY	06	1158E	1201	1207	S10	E54	.804		10.5	90	SF	2	C		25		
RAMY	06	1201	1207	1228	N19	E34	.669		9.1	27	SF	2	C		67		
RAMY	06	1237	1237	1247	S10	E54	.804		10.6	10	SF	2	C		113		
RAMY	06	1244	1250	1318	N19	E34	.669		9.1	34	SN	2	C		47		
RAMY	06	1253	1316	1322	N16	E50	.812		10.3	29	SF	2	C		44		
RAMY	06	1327	1327	1334	N19	E32	.648		9.0	7	SF	2	C		32		
RAMY	06	1332	1333	1335	S10	E54	.804		10.6	3	SF	3	C		30		
RAMY	06	1359	1401	1419	S10	E53	.794		10.6	20	SN	3	C		86		
RAMY	06	1536	1536	1539	S10	E55	.814		10.8	3	SF	3	C		22		
BIGB	06	1621	1625	1743	N11	E09	.333		7.4	82	SB	2	C	1625	160	1.7	
RAMY	06	1651	1652	1654D	N19	E30	.628		9.0	30	SN	3	C		24		
RAMY	06	1821	1823	1832	S10	E51	.773		10.6	11	SF	2	C		38		
RAMY	06	1842	1843	1847	S19	W41	.667		3.7	5	SN	2	C		26		
BIGB	06	2055	2102	2212	N11	E05	.308		7.2	77	SB	2	C	2102	170	1.8	
PALE	07	0154E	0154U	0217	S11	E49	.751		10.8	230	1B	2	C		265		
PALE	07	0312	0316	0332	N12	E40	.691		10.1	20	SF	2	C		71		
CATA	07	0545E	0545	0640	N10	W02	.281		7.1	550	1B	2	P	0545	450	4.8	
ATHN	07	0547E	0548	0628	N10	W02	.281		7.1	410	1B	3	V	0548	328	3.5	
RAMY	07	1213	1316	1334	S08	E44	.691		10.8	81	SB	3	C		115		
RAMY	07	1347	1352	1354	N19	E15	.488		8.7	7	SF	3	C		28		
RAMY	07	1359	1406	1425	S14	W55	.815		3.5	26	SF	3	C		47		
RAMY	07	1500	1500	1508	N16	E35	.658		10.3	8	SF	3	C		19		
BIGB	07	1842	1845	1958	N11	W07	.318		7.3	76	1B	3	C	1845	210	2.2	
RAMY	07	1857	1903	1905D	S17	W60	.862		3.3	80	1N	3	C		141		
RAMY	07	1942	1944	1950	N20	W03	.444		7.6	8	SN	3	C		67		
RAMY	07	2039	2042	2051	N18	E15	.475		9.0	12	SN	3	C		47		
BIGB	07	2111	2115	2121	N24	E02	.504		8.0	10	SF	3	C	2115	180	1.9	
BIGB	07	2357	0005	0045	N11	W10	.340		7.2	48	SB	3	C	0005	170	1.8	
MANI	08	0215E	0215U	0240D	S09	E40	.639		11.1	250	SN	3	C		35		
MANI	08	0415E	0415U	0420D	N18	E08	.429		8.8	50	SN	3	C		80		
MANI	08	0415E	0415U	0418	S23	W02	.292		8.0	30	SF	3	C		40		
ISTA	08	0725		0736	S33	E77	.969		14.1	11	SF						B
CATA	08	0740E	0740	0740D	S18	W90	.999		1.6		1F	2	P	0740	84		
RAMY	08	1248	1251	1312	N16	E23	.526		10.3	24	SF	3	C		27		
RAMY	08	1344	1344	1350	S10	E32	.529		11.0	6	SN	3	C		24		
RAMY	08	1420	1420	1435	N17	E24	.547		10.4	15	SF	3	C		28		
HOLL	08	1452	1456	1509	N18	E22	.537		10.3	17	SF	3	C		109		
HOLL	08	1518	1538	1602	N18	E01	.409		8.7	44	SN	3	C		165		
HOLL	08	1530	1531	1545	S13	E26	.447		10.6	15	SB	3	C		187		
RAMY	08	1532E	1532U	1548	S12	E28	.473		10.7	160	SB	3	C		145		D
RAMY	08	1533E	1540	1614	N18	E04	.414		8.9	410	SN	3	C		83		
HOLL	08	1545	1546	1552	N16	E21	.505		10.2	7	SF	3	C		33		
HOLL	08	1552	1556	1609	N18	E22	.537		10.3	17	SF	3	C		109		
HOLL	08	1630	1631	1633D	S09	E28	.468		10.8	30	SB	3	C		187		
HOLL	08	1708	1720	1748	S09	E27	.453		10.7	40	SN	3	C		93		
BIGB	08	1709	1713	1720	N29	W30	1.001		2.0	11	1F	3	C	1713	70		
RAMY	08	1710	1718	1745	S10	E29	.484		10.9	35	SN	3	C		91		
BIGB	08	1902	1903	1923	N16	E03	.380		9.0	21	SN	3	C	1903	70	.7	
HOLL	08	2026	2029	2052	N21	E03	.458		9.1	26	SN	3	C		103		
RAMY	08	2027	2028	2049	N19	E02	.426		9.0	22	SN	3	C		75		
BIGB	08	2046	2047	2108	N21	W14	.506		7.8	22	SF	3	C	2047	80	.8	
BIGB	08	2053	2101	2151	N11	W21	.454		7.3	58	1B	3	C	2101	190	2.1	
BIGB	08	2104	2111	2148	N26	W90	1.001		2.1	44	1F	3	C	2111	110		
BIGB	08	2154	2156	2203	N24	W13	.540		7.9	9	SN	3	C	2156	160	1.7	
HOLL	08	2156	2204	2233	N14	E20	.474		10.4	37	SN	3	C		102		
HOLL	08	2206	2208	2231	S09	E24	.406		10.7	25	SN	3	C		33		
HOLL	08	2237	2238	2302	N17	E21	.516		10.3	25	SN	3	C		40		
BIGB	08	2342	2345	0026	N26	W90	1.001		2.2	44	1N	3	C	2345	70		
MANI	09	0005	0030	0103	S09	E25	.422		10.9	58	1B	3	C		350		
MANI	09	0305E	0305U	0325D	N21	E07	.468		9.7	200	SN	3	C		70		
MANI	09	0547E	0550	0602D	S11	E19	.332		10.7	150	SN	3	C		50		
ISTA	09	0755	0803	0818	S07	E66	.910		14.3	23	1B						CD
RAMY	09	1356	1357	1415	N16	E10	.410		10.3	19	SN	3	C		23		
RAMY	09	1852	1853	1911	N16	E07	.393		10.3	19	SF	3	C		34		
BIGB	09	2152	2207	2237	S29	E30	.999		16.7	45	1B	3	C	2207	70		
BIGB	09	2212	2221	2248	S10	W90	1.000		3.2	36	2B	3	C	2221	290		A
MANI	10	0536E	0536U	0543D	S10	E07	.139		10.8	70	1N	3	C		210		
ISTA	10	0700E		0712	S18	E27	.484		12.3	120	SN						EZ

Hα SOLAR FLARES

APRIL 1980

OBSERVATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS
	DAY	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	HALE PLAGE REGION	CMP. DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	
ISTA	10	0708		0753	S19	W90	.999		3.5	45	1N						ACG
ISTA	10	0756	0801	0811	S32	E49	.793		14.8	15	1N						F
ISTA	10	0759		0806	N24	W29	.659		8.2	7	SN						D
ISTA	10	0818		0822	S10	E51	.773		14.2	4	SF						D
CATA	10	0930E	0930	0938D	N10	W43	.716		7.2		1B	2	P	0930	281	4.1	
CATA	10	1050E	1050	1050D	N13	W35	.638		7.8		1N	2	P	1050	197	2.6	
BIGB	10	1722	1726	1854	N11	W45	.742		7.3	92	1B	3	C	1726	260	3.8	
BIGB	10	1743	1751	1826	S09	W90	1.000		4.8	43	1B	3	C	1751	100		
HOLL	10	1753	1754	1802D	S16	E63	.886		15.5	9D	SF	2	C		21		
BIGB	10	1837	1839	1852	S12	W90	1.000		4.8	15	1B	3	C	1839	50		
HOLL	10	1905E	1917U	1959D	N19	W36	.807		8.1	540	1N	1	C		208		
HOLL	10	1909	1910	1915	N16	W52	.629		6.9	6	SF	1	C		35		
HOLL	10	1934	1943	1946	S14	E62	.878		15.5	12	SF	1	C		14		
BIGB	10	2218E	2218U	2258	S29	E38	.677		13.8	40D	1N	3	P	2218	190	2.5	
CATA	11	0700	0715	0808D	N13	W22	.483		9.6	60D	SN	2	P	0715	140	1.6	
RAMY	11	1248	1252	1343	N18	W38	.701		8.7	57	SN	3	C		27		
RAMY	11	1356	1358	1439	S11	W09	.178		10.9	43	SB	3	C		166		D
RAMY	11	1444	1448	1505	N15	W59	.884		7.2	21	SF	3	C		34		
BIGB	11	1448	1458	1523	S33	W83	.987		5.4	35	1B	3	C	1458	50		A
BIGB	11	1506	1509	1517	N10	W58	.937		6.5	11	1B	2	C	1509	210		
BIGB	11	1725	1728	1741D	S30	E30	.603		14.0	160	1B	2	C	1728	180	2.1	
BIGB	11	1746E	1751	1845	S30	E30	.603		14.0	590	1B	2	P	1751	210	2.5	
BIGB	11	1821	1822	1832	S32	E62	.965		17.9	11	1B	2	C	1822	50		
BIGB	11	1821	1822	1838	S17	E06	.217		12.2	17	SB	2	C	1822	100	1.0	
BIGB	11	2139	2142	2151	S06	E29	.482		14.1	12	SB	2	C	2142	120	1.4	
BIGB	11	2258	2306	2331	N09	W70	.947		6.7	33	1B	1	C	2306	120		
BIGB	11	2309	2314	2345	S31	E30	.611		14.2	36	1N	1	C	2314	200	2.4	
ATHN	12	0550E	0555	0612	N48	E32	.672		14.6	22D	SB	3	S	0555	66	1.8	
ATHN	12	0610E	0612	0635	N15	W69	.948		7.1	25D	1B	3	V	0612	147	3.5	
CATA	12	0610E	0610	0620	S31	W09	.447		11.6	10D	SB	2	P	0610	56	.6	
ATHN	12	0640E	0642	0730	N23	W50	.836		8.5	50D	1B	3	V	0642	164	2.4	
CATA	12	0640	0640	0655	N22	W58	.893		7.9	15	1B	2	C	0640	197	4.5	
CATA	12	0900	0920	1005	S31	E21	.529		14.0	65	2B	2	C	0920	422	5.1	
ATHN	12	0905E	0907	0912D	S33	E20	.543		13.9	7D	SN	3	V	0907	147	1.9	
CATA	12	0920	0925	0940	S17	E54	.808		16.4	20	1B	2	C	0925	140	2.5	T
CATA	12	1020	1020	1030D	S31	W07	.438		11.9	100	SN	2	P	1020	45	.5	
RAMY	12	1805	1805	1831	N17	W49	.804		9.1	26	SN	3	C		31		
RAMY	12	1917	1924	1936	N11	E31	.576		15.1	19	SN	3	C		49		
BIGB	12	1919	1920	1938	S31	E17	.497		14.1	39	SF	2	C	1920	150	1.6	
BIGB	12	1947	1949	2029	N25	W55	.818		8.7	42	SB	2	C	1949	90	1.6	
BIGB	12	1955	1957	2037	N11	W72	.959		7.4	42	1B	1	C	1957	90		
RAMY	12	2001	2004	2017	N17	W51	.822		9.0	16	SN	3	C		27		
RAMY	12	2006	2008	2012	S17	W66	.922		7.7	6	SF	3	C		15		
BIGB	12	2039	2043	2105	N09	W81	.988		6.8	26	1B	2	C	2043	98		
BIGB	12	2103	2113	2142	N29	W90	1.001		6.1	39	1B	3	C	2113	50		
HOLL	12	2200	2202	2210	S09	E69	.999		19.6	10	SF	2	C		0		
BIGB	12	2225	2228	2245	S05	E13	.224		13.9	20	SB	3	C	2228	170	1.8	
HOLL	12	2228	2230	2249	N17	W56	.865		8.7	21	SN	2	C		93		
BIGB	12	2243	2252	2355	S19	E50	.770		16.7	72	1B	3	C	2252	260	4.2	
BIGB	12	2301	2305	2330	S30	E02	.410		13.1	29	SB	3	C	2305	160	1.7	
CATA	13	0640	0640	0645	S32	E15	.496		14.4	5	SN	2	C	0640	56	.7	
WEND	13	0831	0832	0841	S05	E05	.083		13.7	10	SN		C	0832	82	.8	
WEND	13	0834		0858	N12	W80	.989		7.4	24	SN		C	0839	44		A
WEND	13	0900	0904	0916	N22	W70	.961		8.1	16	SN		C	0904	50		A
WEND	13	1001	1003	1008	N12	E48	.776		17.8	7	SF		C	1003	38	.6	
WEND	13	1003	1005	1012	S32	E11	.472		14.2	9	SN		C	1005	63	.8	
WEND	13	1014	1014	1018	S31	E04	.430		13.7	4	SF		C	1014	68	.8	
CATA	13	1015E	1015	1020D	S32	W04	.446		13.1	50	SB	2	P	1015	84	1.0	
WEND	13	1018	1026	1047	S05	E05	.088		13.8	29	SN		C	1026	200	2.1	
WEND	13	1026	1028	1032	S30	E07	.424		14.0	6	SF		C	1028	62	.7	
WEND	13	1113	1113	1119	N12	E47	.766		17.0	6	SF		C	1113	131	2.0	
WEND	13	1228	1237	1247	S05	E04	.071		13.8	19	SN		C	1237	125	1.3	
RAMY	13	1230E	1231	1251	N17	W64	.922		8.7	210	SN	2	C		52		
WEND	13	1245	1245	1252	N12	E46	.756		17.0	7	SF		C	1245	68	1.0	
RAMY	13	1321E	1336	1404	N16	W62	.907		8.9	43D	SN	2	C		37		
WEND	13	1419	1426	1435	N12	E45	.745		17.0	16	SF		C	1426	118	1.8	
RAMY	13	1449	1458	1505	N17	W61	.902		9.0	16	SN	3	C		34		
RAMY	13	1511	1529	1546	N26	W31	.692		11.3	35	SF	3	C		24		
RAMY	13	1528	1531	1539	N15	W63	.912		8.9	11	SF	3	C		14		

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

NOVEMBER 1979

DAY OF MONTH	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY MEAN	INT	POLARIZATION OR REMARKS
10	10715	DWIN	45 C	1216.0	1219	10.0	140	80		
	930	BORD	45 C	1216.6	1218.7	4.4	1184	20		
	2650	DWIN	45 C	1217.0	1219	8.0	100	50		
	1470	POTS	3 S	1217.0	1219.2	5.0	43			
	33	UPIC	4 S/F	1218.3	1219.1	2.7				
	29	UPIC	4 S/F	1218.4	1218.9	2.8				
	2800	OTTA	24OAR	1250.0	1330	40.0	41.0	20.5		
	3000	POTS	25 R	1302.0	1315.4	62.0	42			
	9400	HUAN	20 GRF	1302.1	1328.0	95.4	34.2	16.2		0
	8400	BERN	20	1308.1	1323.1	60.0	35.0			
	10400	BERN	20	1308.1	1340.0	52.0	28.0			
	9500	POTS	20 GRF	1310.0	1325.0	54.0	28			
	1470	POTS	25 R	1311.5	1315.9	53.0	66			
	930	BORD	45 C	1314.0	1314.8	7.0	150	20		
	29	UPIC	4 S/F	1314.5	1315.1	2.7				
	33	UPIC	4 S/F	1314.7	1315.5	2.3				
	2800	OTTA	4 S/F	1314.7	1315.2	5.0	24.0	12.0		
	2800	OTTA	22 GRF	1428.0	1438	13.0	5.0	2.6		
	2800	OTTA	21 GRF	1510.0	1525	30.0	5.6	3.2		
	9400	HUAN	21 GRF	1520.8	1528.3	16.5	14.6	8.0		L
	930	BORD	41 F	1521.0	1521.2	1.6	35	2		
	7000	SAOP	45 C	1521.0	1526.8	3.4	79.0			11R
	930	BORD	45 C	1526.0	1527.3	4.0	34	4		
	2800	OTTA	3 S	1526.0	1526.5	4.0	37.4	10.0		
	9400	HUAN	4 S/F	1526.2	1526.7	1.9	50.5	25.6		L
	2800	OTTA	20 GRF	1548.0	1551	20.0	8.4	2.8		
	9400	HUAN	21 GRF	1600.3	1640.0	188.3	22.8	12.4		L
	2800	OTTA	21 GRF	1620.0	1640	90.0	7.0	4.0		
	9400	HUAN	2 S/F	1620.5	1621.9	3.9	19.5	10.9		0
	2800	OTTA	4 S/F	1621.0	1621.6	4.0	26.0	6.6		
	9400	HUAN	2 S/F	1714.7	1715.4	1.7	16.3	6.8		0
	2800	OTTA	26A FAL	1805.0	1910	65.0	-13.8	-6.9		
	7000	SAOP	4 S/F	1826.6	1831.6	4.4	238.0			3R
	9400	HUAN	3 S	1830.0	1831.9	7.6	107.4	34.2		L
	2695	BOUL	3 S	1831.0E	1831.5	1.5D	75	25		
	2800	OTTA	3 S	1831.0	1831.7	5.0	132.0	36.0		
	2800	OTTA	8 S	2025.1	2025.4	.6	10.4	5.2		
	2800	OTTA	21 GRF	2040.0	2100	35.0	4.2	2.1		
	2800	OTTA	1 S	2055.9	2056.1	1.0	5.2	2.6		
	2695	PENT	20 GRF	2128.0	2134	12.0	9.4	3.6		
	2695	PENT	20 GRF	2142.0	2147	18.0	9.4	4.6		
	100	HIRA	46 C	2151.2	2151.8	1.8	1500 U	380 U		
	606	MANI	8 S	2327.5	2327.7	3.8	162.0	54.0		SPIKE
	2695	MANI	3 S	2327.5	2328.3	2.5	42.7	14.2		
	8800	MANI	3 S	2327.5	2328.1	1.5	30.3	10.1		
	4995	MANI	3 S	2327.5	2328.2	2.5	30.6	10.2		
	1415	MANI	4 S	2327.5	2328.3	5.0	49.1	16.4		
	500	HIRA	4 S/F	2327.6	2328.0	1.0	10000	3500		
	17000	NOBE	8 S	2327.8	2328.2	.4	31			L
11	202	IZMI	44 NS	0600.0E		360.0D	55			
	113	POTS	44 NS	0640.0E	1212	455.0D	20			
	127	TORN	43 NS	0640.0	1129 U	320.0D	870	19		V1,INCOMPLETE
	536	ONDR	44 NS	0753.0E		377.0D	104	6		
	260	ONDR	44 NS	0753.0E		377.0D	172	15		
	35000	NAGO	20 GRF	0130.0	0230	140.0	15			
	9100	GORK	2 SF	0515.1	0515.7	2.7	12	5		
	650	GORK	3 S	0520.8	0521.3	1.2	21	10		
	5730	IRKU	20 GRF	0528.0	0533.5	9.0	16	8		L
	9100	GORK	21 GRF	0530.5		360.0				
	9100	GORK	2 SF	0531.7	0533.3	2.5	10.5			
	650	GORK	2 SF	0602.2E	0604.0	6.0	8.5	4		
	2950	GORK	21 GRF	0602.8	0607.1	10.7	28			
	3100	CRIM	3 S	0603.0	0605.0	7.0	38 D			
	950	GORK	4 SF	0604.0	0606.0	4.3	23			
	2950	GORK	3 S	0604.2	0606.0	2.8	62			
	5730	IRKU	22 GRF	0604.3	0606.0	8.0	31	10		L
	9100	GORK	1 S	0604.8	0605.9	2.0	12	6		
	650	GORK	20 GRF	0648.0	0708.3	25.8	4			
	3100	CRIM	1 S	0648.0	0649.0	3.0	15	5		
	9100	GORK	2 SF	0648.4	0648.8	1.0	10.5			
	3100	CRIM	1 S	0745.5	0747.0	5.0	8	3		
	930	BORD	8 S	0754.7	0754.7	1.0	18	1		
	930	BORD	45 C	0820.8	0821.3	.5	29	4		
	3100	CRIM	3 S	0844.0	0845.5	2.0	40	10		
	930	BORD	41 F	0844.0	0844.3	2.0	43	3		
	2650	DWIN	1 S	0844.0	0844	2.0	45	20		
	2950	GORK	2 SF	0844.1	0844.3	1.7	63			
	2950	GORK	41 F	0857.0	0857.8	4.8	9			
	650	GORK	40 F	0857.0	0900.1	19.6	11.5			
	650	GORK		0857.0	0915.2		9.5			
	9500	POTS	42 SER	0857.0	0900.4	4.0	35			
	2950	GORK		0857.0	0905.0		36			
	9100	GORK	1 S	0857.1	0857.7	1.5	11	5.5		
	1470	POTS	42 SER	0857.5	0857.7	3.5	17			

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IM-POR-TANCE	OBS.		MEASUREMENTS			REMARKS
	DAY	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	HALE PLAGE REGION	CMP. DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Mil. of Disk	CORR. AREA Sq. Deg.	
HOLL	16	2137E	2225U	2345D	S16	E17	.337		18.2	188D	SF	2	C		+2		
BIGB	17	0104	0108	0114D	S14	E90	1.000		23.6	10D	1B	3	P	0108	80		
RAMY	17	1314	1315	1326	N11	E43	.718		20.8	12	SN	3	C		18		
HOLL	17	1753	1757	1854	S33	W06	.471		17.3	61	SF	3	C		134		
RAMY	17	1831	1831	1844	N16	W52	.827		13.9	13	SF	3	C		17		
HOLL	17	1919	1919	1934	S19	W30	.533		15.6	15	SN	3	C		35		
ATHN	18	0624E	0628	0704	N15	W24	.520		16.5	40D	SB	1	V	0628	98	1.2	
ISTA	18	0630E		0710	N19	W26	.579		16.3	40D	2N						BI
CATA	18	0640E	0648	0700D	N20	W25	.578		16.4	20D	1N	1	P	0648	394	5.0	
ISTA	18	0655		0707	S14	E54	.807		22.3	12	SF						E
ISTA	18	0805		0820	N14	E90	1.000		25.1	15	1N						A
ISTA	18	0816		0834	N10	E30	1.000		25.1	18	SN						A
RAMY	18	1451	1453	1503	S16	W41	.664		15.5	12	SN	3	C		24		
RAMY	18	1732	1736	1747	S18	W42	.681		15.6	15	SF	3	C		38		
RAMY	18	1746	1751	1755	N15	E59	.682		23.2	9	SN	3	C		30		
RAMY	18	1844	1859	1906	N15	E59	.682		23.2	22	SN	3	C		34		
BIGB	18	2000	2004	2018	N14	E90	1.000		25.6	18	1B	3	C	2004	130		
BIGB	18	2022	2024	2034	N11	E90	1.000		25.6	12	1B	3	C	2024	70		
CATA	19	0725	0725	0745	N14	E90	1.000		26.1	20	1N	2	C	0725	84		A
CATA	19	1110	1110	1115	N15	E90	1.000		26.2	5	1N	2	C	1110	84		
HOLL	19	1520	1524	1531	S33	W30	.634		17.4	11	SF	2	C		46		
HOLL	19	1702	1705	1733	N14	E19	.454		21.1	31	SN	3	C		140		
HOLL	19	1810	1810	1828	S13	W05	.159		19.4	18	SN	3	C		59		
HOLL	19	1906	1910	1928	N15	E19	.465		21.2	22	SN	3	C		64		
CATA	20	0620	0650	0730	N11	E53	.904		25.0	70	2B	1	C	0650	365	6.8	
CATA	20	1100	1100	1125	N10	E51	.799		24.3	25	1N	2	C	1100	140	2.4	
ATHN	21	0600E	0600	0623	N23	E39	.735		24.2	23D	SB	3	S	0600	131	1.7	
RAMY	21	1200	1201	1226	N12	W05	.306		21.1	26	SN	3	C		47		
RAMY	21	1543	1551	1601	S05	E56	.827		25.9	18	SN	3	C		71		
RAMY	21	1808	1809	1826	S16	E08	.232		22.4	18	SN	3	C		27		
RAMY	21	2028	2028	2039	S19	W38	.637		19.0	11	SF	3	C		61		
HOLL	21	2304	2309	2332D	S16	E06	.214		22.4	28D	SF	3	C		46		
CATA	22	1055E	1055	1105D	N16	E41	.716		25.5	10D	SN	1	P	1055	56	.6	
HOLL	22	1940	1956	2002	S16	W10	.254		22.1	22	SF	3	C		44		
RAMY	23	1252	1259	1308	S11	E57	.836		27.8	16	SB	3	C		108		
RAMY	23	1422	1422	1432	S16	W15	.316		22.5	10	SF	3	C		29		
HOLL	23	1459	1504	1512	S18	W16	.348		22.4	13	SF	3	C		35		
HOLL	23	1523	1613U	1625	S17	W18	.364		22.3	62	SN	3	C		181		
HOLL	23	1607	1613	1616	S09	E61	.871		28.2	9	SF	3	C		14		
HOLL	23	1639	1641	1655	S18	W19	.366		22.3	16	SN	3	C		64		
HOLL	23	1703	1711	1717	S18	W20	.399		22.2	14	SN	3	C		73		
HOLL	23	1722	1726	1736	S11	E56	.626		27.9	14	SN	3	C		55		
HOLL	23	1733	1734	1757	S15	W16	.320		22.5	24	SB	3	C		113		C
RAMY	23	1737E	1738U	1750	S15	W15	.307		22.6	13D	SN	2	C		50		
HOLL	23	1812	1812	1820	S17	W19	.377		22.3	8	SN	3	C		25		
HOLL	23	1930	1939	2003	S18	W28	.399		22.3	33	SN	3	C		188		
HOLL	23	1930	1932	1950	N13	W37	.655		21.0	20	SF	3	C		52		
RAMY	23	1932	1940	1952	S16	W19	.369		22.4	20	SN	2	C		33		
HOLL	23	2202	2206	2213	S16	W27	.480		21.9	11	SN	3	C		28		
HOLL	23	2223	2226	2235	S16	W28	.494		21.8	12	SN	3	C		58		
HOLL	23	2344	2347	2357	S18	W21	.412		22.4	13	SN	3	C		137		
ISTA	24	0650		0702	S08	E90	1.000		1.0	12	SN						AD
ISTA	24	0750		0757	S09	E90	1.000		1.1	7	SN						AD
CATA	24	0930	0930	0940	S15	W03	.200		24.2	10	SB	2	C	0930	112	1.2	
RAMY	24	1149	1206	1223	N09	W49	.775		20.8	34	SN	3	C		38		
RAMY	24	1201	1225	1308	S17	W28	.500		22.4	67	SB	3	C		51		D
RAMY	24	1235	1237	1306	N08	W48	.761		20.9	31	SB	3	C		28		
RAMY	24	1341	1344	1405	S15	W31	.532		22.2	24	SN	3	C		103		
RAMY	24	1418	1420	1456	S17	W30	.527		22.3	38	SN	3	C		42		
RAMY	24	1503	1603	1651	S18	W31	.545		22.3	108	SB	3	C		176		
RAMY	24	1557	1604	1619	S18	E76	.967		30.4	22	SN	3	C		0		
RAMY	24	1631	1631	1638	N12	W47	.762		21.2	7	SF	3	C		32		
RAMY	24	1647	1653	1709	N12	W47	.762		21.2	22	SN	3	C		40		
HOLL	24	1721	1728	1753	S17	W34	.560		22.2	32	SN	3	C		86		

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IM POR-TANCE	OBS.		MEASUREMENTS			REMARKS
	DAY	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	HALE PLAGE REGION	CMP. DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Mil. of Disk	CORR. AREA Sq. Deg.	
HOLL	24	1726	1728	1741	N11	W58	.790		21.0	15	SF	3	C		47		
RAMY	24	1743	1752	1803	N09	W55	.834		20.6	20	SN	3	C		33		
BIGB	24	1759	1804	1921	S14	W86	.189		24.3	82	SB	3	C	1804	60	.6	
HOLL	24	1759	1803	1805	S19	W32	.563		22.3	6	SF	3	C		22		
RAMY	24	1828	1843	1902	S15	W34	.573		22.2	34	SN	3	C		50		
PALE	24	1830E	1833	1858	N06	W54	.819		20.7	28D	SN	2	C		79		
PALE	24	1830E	1842	1844D	S19	W34	.588		22.2	14D	1N	2	C		258		
HOLL	24	1831	1833	1843	N11	W51	.800		20.9	12	SN	3	C		57		
HOLL	24	1843	1843	1851	S17	W36	.606		22.1	8	SF	3	C		24		
PALE	24	1900	1926	1945	N06	W54	.819		20.7	45	1N	2	C		149		
RAMY	24	1902	1905	1909	N09	W55	.834		20.7	7	SF	3	C		25		
PALE	24	1918	1931	1940	S16	E72	.948		30.2	22	SF	2	C		73		
BIGB	24	1924	1929	2027	N07	E90	1.000		1.6	63	1B	3	C	1929	50		
RAMY	24	1924	1926	1938	N08	W64	.907		20.0	14	1B	2	C		157		
RAMY	24	2028	2041	2053	N12	W50	.793		21.1	25	SN	2	C		51		
RAMY	24	2047	2049	2106	S18	W33	.571		22.4	19	SN	2	C		32		
PALE	24	2054E	2055U	2117D	S19	W34	.568		22.3	23D	SN	1	C		100		
PALE	24	2145E	2147U	2213	S06	E13	.225		25.9	28D	SF	2	C		102		D
PALE	25	0312E	0312U	0321	N06	W61	.862		20.6	9D	SF	2	C		47		D
CATA	25	0835	0840	0850	N24	W16	.541		24.2	15	SN	2	C	0840	84	1.0	
RAMY	25	1309	1311	1319	S16	W39	.641		22.6	10	SN	3	C		26		
RAMY	25	1333	1334	1346	N08	W68	.934		20.5	13	SN	3	C		17		
RAMY	25	1409	1413	1426	S16	E63	.889		30.3	17	SN	3	C		82		
RAMY	25	1432	1434	1435	N12	W59	.875		21.2	3	SF	3	C		13		
RAMY	25	1446	1447	1503	N08	W68	.934		20.5	17	SB	3	C		48		
RAMY	25	1451	1451	1455	S16	E64	.897		30.4	4	SF	3	C		24		
RAMY	25	1506	1518	1524	S19	W44	.709		22.3	18	SB	3	C		32		
HOLL	25	1513	1519	1525	S19	W44	.709		22.3	12	SN	3	C		23		
RAMY	25	1532	1533	1538	S20	E69	.931		30.8	6	SF	3	C		33		
HOLL	25	1532	1534	1543	S20	E68	.925		30.7	11	SF	3	C		34		
HOLL	25	1600	1603	1630	S18	W44	.707		22.4	30	SN	3	C		109		
RAMY	25	1601	1608	1716	S18	W45	.718		22.3	75	SB	3	C		73		D
HOLL	25	1612	1617	1619	N09	W65	.914		20.8	7	SF	3	C		15		
RAMY	25	1616	1616	1625	N08	W65	.914		20.8	9	SN	3	C		19		
HOLL	25	1637	1721	1743	S18	W47	.740		22.2	66	SB	3	C		116		
HOLL	25	1641	1641	1646	N07	W66	.920		20.7	5	SF	3	C		49		
HOLL	25	1710	1716	1741	N07	W68	.933		20.6	31	SN	3	C		26		
RAMY	25	1719E	1720	1735	S18	W46	.729		22.3	16D	SB	3	C		75		
BIGB	25	1742	1746	1753	S17	E76	.967		1.4	11	1N	2	C	1746	100		A
HOLL	25	1749	2022	2308	N08	W68	.934		20.6	319	1B	3	C		132		
RAMY	25	1842	1848	1934	N08	W67	.927		20.8	52	SF	3	C		21		
PALE	25	1903E	1904U	1952	S20	W47	.745		22.3	49D	SF	2	C		57		D
PALE	25	1908E	1956	1936	N05	W66	.918		20.8	28D	1N	2	C		81		
HOLL	25	1917	2108	2335	S19	W51	.785		22.0	258	1B	3	C		400		
BIGB	25	1935	1937	2010	S30	W17	.498		24.5	35	SN	2	C	1937	100	1.1	
PALE	25	2009E	2022	2034D	N06	W68	.932		20.7	25D	1N	2	C		113		
PALE	25	2306E	2313U	2314D	S20	W36	.618		23.3	8D	SF	2	C		68		D
PALE	25	2313E	2313U	2314D	S06	E12	.208		26.9	1D	SF	2	C		36		D
ATHN	26	0604E	0608	0632D	S18	E68	.925		1.4	28D	SN	3	V	0608	82	1.9	
CATA	26	0610	0610	0615	S14	W34	.570		23.7	5	SF	2	C	0610	56	.7	
CATA	26	0720	0725	0735	S17	E69	.931		1.5	15	SB	2	C	0725	56		
ATHN	26	0724	0726	0735	S16	E65	.904		1.2	11	SN	3	V	0726	98	2.0	
CATA	26	0930E	0945	1005	S14	E65	.904		1.3	35D	1B	2	P	0945	197	4.7	
ATHN	26	0934	0941	1006	S14	E59	.856		30.8	32	1B	3	V	0941	131	2.4	
ISTA	26	0943E		1005	S17	E63	.890		1.1	22D	1N						BE
ATHN	26	1147E	1148	1216	S30	W28	.596		24.4	29D	SN	3	V	1148	147	1.8	
CATA	26	1150	1150	1150D	S31	W28	.605		24.4		1B	2	P	1150	197	2.6	Z
RAMY	26	1208	1218	1321	N07	W79	.984		20.6	73	SN	3	C		0		
ATHN	26	1250E	1252	1305	S15	E61	.873		1.1	15D	SN	3	V	1252	98	1.9	
RAMY	26	1250	1251	1302	N04	E81	.989		2.6	12	SF	3	C		0		
ATHN	26	1332E	1335	1354	S24	E22	.480		26.2	22D	1B	3	V	1335	229	2.6	
RAMY	26	1443	1444	1447	N09	W79	.985		20.7	4	SN	3	C		0		
RAMY	26	1510	1516	1518	N07	W75	.969		21.0	8	SN	3	C		18		
HOLL	26	1534	1534	1559	N08	W32	.992		20.5	24	SF	3	C		0		
HOLL	26	1656	1658	1703	N06	W80	.987		20.7	7	SN	3	C		14		
HOLL	26	1719	1720	1728	N06	W89	1.000		20.0	9	SN	3	C		0		
HOLL	26	1832	1832	1841	N06	W89	1.000		20.1	9	SN	3	C		0		
BIGB	26	1837	1841	1917	S30	W31	.625		24.5	40	SN	3	C	1841			
PALE	26	1918E	1928	1959	N07	W24	.996		20.5	41D	SF	3	C		0		D
BIGB	26	1927	1929	1941	S16	W43	.691		23.6	14	SB	2	C	1929	80	1.1	

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

NOVEMBER 1979

DAY OF MONTH	FREQUENCY	STATION	TYPE		STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY MEAN	INT	POLARIZATION OR REMARKS
13	127	TORN	45	C	1234.3	1236.2	4.3	12	3		
	7000	SAOP	21	GRF	1422.0						
	7000	SAOP	21	GRF	1422.0			10.0			O
	2800	OTTA	45	C	1510.0	1510.5	5.0	19.2	7.0		
	9400	HUAN	2	S/F	1510.1	1510.7	1.9	18.6	11.0		O
	7000	SAOP	45	C	1510.4E	1510.4	3.2	23.0			12L
	9400	HUAN	29	PBI	1512.2	1512.2	19.8	4.6	.8		O
	9400	HUAN	20	GRF	1538.5	1601.8	46.1	3.1	1.9		O
	2800	OTTA	8	S	1638.9	1638.9	.1	7.2			
	2800	OTTA	22	GRF	1720.0	1734	25.0	4.2	1.8		
	2800	OTTA	40	F	1814.0	1822.8	13.0	7.8			
	9400	HUAN	2	S/F	1820.6	1822.6	5.6	10.9	3.1		R
	7000	SAOP	45	C	1821.0	1822.7	3.2	13.0			16R
	9400	HUAN	21	GRF	1854.7	1908.4	26.4	6.2	2.3		R
	2800	OTTA	40	F	1903.0	1913.5	22.5	14.2			
	9400	HUAN	1	S	1903.0	1904.0	2.4	7.8	3.3		O
	2800	OTTA	21	GRF	1935.0	2000	41.0	3.6			
	7000	SAOP	3	S	1944.0	1944.9	5.4	18.0			16R
	9400	HUAN	2	S/F	1957.7	2001.3	5.1	14.0	6.8		R
	2695	PENT	20	GRF	2000.0	2002.5	15.0	10.4			
	2695	PENT	21	GRF	2018.0	2120	90.0	4.2	2.4		
	2800	OTTA	1	S	2037.3	2037.7	2.0	6.2	3.0		
	100	HIRA	7	C	2128.1	2128.6	1.2	950	160		
14	260	ONDR	44	NS	0743.0E		372.0D	195	5		
	536	ONDR	43	NS	0847.0		303.0	46			
	500	HIRA	41	F	0232.0	0232.6	3.0	200			WR
	100	HIRA	42	SER	0232.0	0237.8	13.0	290			
	1415	MANI	3	S	0439.6	0440.2	1.4	10.6	3.5		
	4995	MANI	3	S	0439.6	0440.1	.9	10.4	3.5		
	2695	MANI	3	S	0439.6	0440.1	.9	21.2	7.1		
	3100	CRIM	21	GRF	0736.0	0848.0	197.0	10	3		
	202	IZMI	41	F	0847.2	0849.8	2.6	265			
	113	POTS	8	S	0847.3	0847.5	.4	385	130		
	2950	GORK	1	S	0849.0	0849.3	1.0	3.7	1.8		
	10400	BERN	3		0930.2	0931.8	2.0	12.0			OPR
	8400	BERN	3		0930.2	0931.8	2.0	30.0			OPR
	930	BORD	45	C	0931.0	0931.8	2.0	31	4		
	1470	POTS	3	S	0931.2	0931.8	1.3	22			
	9100	GORK	1	S	0931.2	0932.4	1.9	15	7.5		
	9500	POTS	1	S	0931.5	0931.9	.7	8.4U			
	950	GORK	4	SF	0931.5	0932.1	1.5	17.5			
	3000	POTS	1	S	0931.5	0932.0	1.0	6			
	3100	CRIM	1	S	0931.5	0932.2	1.0	9	3		
	2950	GORK	1	S	0931.8	0932.4	1.3	5.5			
	650	GORK	3	S	0933.8	0934.0	.7	3.6	2.5		
	202	IZMI	8	S	0942.1	0942.2	.3	800	500		
	202	IZMI	8	S	0945.7	0945.7	.2	860	600		
	808	ONDR	3	S	1012.5	1013.2	1.5	40	10		
	3000	POTS	3	S	1112.2	1112.8	5.3	25			
	950	GORK	5	S	1112.4	1112.9	5.0	44			
	7000	SAOP	3	S	1112.4	1112.7	1.8	24.0			6R
	2950	GORK	3	S	1112.5	1112.7	2.4	23	10		
	1470	POTS	3	S	1112.5	1113.2	6.0	25			
	202	IZMI	47	GB	1112.5	1112.6	.7	1100	700		
	113	POTS	41	F	1112.5	1113.1	1.6	280	20		
	9500	POTS	3	S	1112.5	1112.7	2.5	14 U			
	650	GORK	4	SF	1112.5	1112.7	2.5	23.6	19		
	9100	GORK	1	S	1112.5	1112.7	.9	21	10		
	930	BORD	45	C	1112.6	1112.9	6.0	78	9		
	8400	BERN	3		1112.6	1112.8	2.5	30.0			OPR
	10400	BERN	3		1112.6	1112.8	2.5	12.0			OPR
	3100	CRIM	1	S	1113.0	1113.2	2.0	22	7		
	2650	DWIN	1	S	1113.0	1113	2.0	30	20		
	7000	SAOP	20	GRF	1214.0	1215.2	21.6	9.0			O
	228	HARS	45	C	1223.8	1224.3	1.0	160	30		
	228	HARS	45	C	1227.5	1227.5	1.5	170	25		
	930	BORD	41	F	1250.0	1250.3	1.2	139	2		
	2800	OTTA	21	GRF	1325.0	1400	75.0	5.8	3.8		
	7000	SAOP	45	C	1326.6	1331.7	43.0	31.0			24L
	3000	POTS	3	S	1330.0	1331.7	5.0	23			
	9500	POTS	3	S	1330.0	1331.4	5.0	14 U			
	2800	OTTA	3	S	1330.0	1331.8	4.5	14.2	6.8		
	8400	BERN	27		1330.0	1331.8	7.0	40.0			OPR
	10400	BERN	27		1330.0	1331.8	7.0	15.0			OPR
	9400	HUAN	4	S/F	1330.0	1331.8	3.1	21.6	12.2		L
	1470	POTS	1	S	1331.0	1331.5	2.0	3			
	9400	HUAN	29	PBI	1333.1	1333.1	36.1	10.0	4.8		L
	2800	OTTA	20	GRF	1443.0	1448	17.0	6.8	3.6		
	9400	HUAN	20	GRF	1452.1	1527.8	118.9	15.0	7.7		L
	2800	OTTA	20	GRF	1540.0	1610	60.0	3.4	1.7		
	9400	HUAN	28	PRE	1815.3	2022.8	127.5	11.6	5.9		L
	9400	HUAN	45	C	2022.8	2024.4	7.5	196.4	92.7		L
	2800	OTTA	4	S/F	2023.0	2025	22.0	107.0	41.0		
	2695	BOUL	3	S	2024.0E	2027	6.5D	81	27		

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

NOVEMBER 1979

DAY OF MONTH	FREQUENCY	STATION	TYPE		STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1}		INT	POLARIZATION OR REMARKS
					UT	UT	MINUTES	PEAK	MEAN		
14	9400	HUAN	29	PBI	2030.3	2030.3	35.5	46.6	19.1		L
	2800	OTTA	29	PBI	2045.0	2045	65.0	13.2	6.0		
	4995	MANI	4	S/F	2226.4	2227.5	3.4	37.6	12.5		
	1415	MANI	3	S	2226.4	2227.3	2.8	14.6	4.9		
	2695	MANI	4	S/F	2226.4	2227.5	2.4	24.6	8.2		
	8800	MANI	4	S/F	2226.5	2227.8	2.3	71.7	23.9		
15	260	ONDR	44	NS	0900.0E		290.0D	29	2		
	700	SYDN	45	C	0026.0	0026.3	1.0				
	1400	SYDN	2	S/F	0026.2	0026.4	1.1				
	700	SYDN	8	S	0030.9	0031.1	.4				
	700	SYDN	45	C	0531.8	0532.6	1.2				
	1400	SYDN	45	C	0531.9	0532.6	1.8				
	606	MANI	2	S/F	0532.0	0533.0	1.6	2.2	1.0		
	4995	MANI	3	S	0532.3	0532.6	1.7	22.0	7.3		
	1415	MANI	4	S/F	0532.3	0533.0	1.7	45.9	15.3		
	2695	MANI	3	S	0532.3	0532.6	1.7	25.1	8.4		
	8800	MANI	2	S/F	0532.3	0532.6	1.7	11.1	3.7		
	650	GORK	40	F	0740.6	0741.4	2.4	5			
	930	BORD	41	F	0741.0	0742.4	2.0	22	3		
	950	GORK	4	SF	0741.2	0742.4	2.3	11			
	2950	GORK	3	S	0741.3	0742.6	1.5	19			
	9100	GORK	21	GRF	0741.3						
	10400	BERN	3		0741.3	0742.5	6.0	30.0			OPR
	9500	POTS	3	S	0742.0	0742.5	3.0	35			
	9100	GORK	1	S	0742.2	0742.6	1.0	34	17		
	3000	POTS	8	S	0742.5	0742.6	.5	15			
	1470	POTS	8	S	0742.5	0742.8	.5	5.5			
	2950	GORK	29	PBI	0742.8	0742.8	6.3	5.5			
	650	GORK	4	SF	0751.9	0753.2	2.9	29	4		
	950	GORK	2	SF	0752.0	0753.3	2.9	8.5			
	1415	MANI	2	S/F	0752.0	0753.8	2.5	8.1	2.7		
	606	MANI	4	S/F	0752.0	0753.4	2.5	51.8	17.3		
	2695	MANI	2	S/F	0752.7	0753.7	1.8	4.2	1.4		
	4995	MANI	2	S/F	0752.7	0753.8	1.8	6.6	2.2		
	2950	GORK	1	S	0752.8	0753.3	1.5	4.6	2.3		
	930	BORD	45	C	0753.0	0753.4	1.0	22	2		
	202	IZMI	47	GB	0811.7	0811.7	.5	1580	1000		
	10400	BERN	8		1004.0	1007.1	5.0	70.0			OPR
	9100	GORK	3	S	1006.9	1007.3	1.7	64	32		
	3100	CRIM	3	S	1007.0	1008.5	7.0	27	9		
	2650	DWIN	3	S	1007.0	1008	8.0	140	50		
	9500	POTS	29	PBI	1007.0	1007.2	7.0	46			
	3000	POTS	29	PBI	1007.0	1007.0	12.0	116			
	930	BORD	45	C	1007.0	1007.4	3.0	55	6		
	10715	DWIN	3	S	1007.0	1007	1.0	60	40		
	2950	GORK	3	S	1007.1	1007.3	9.1	60 E			
	930	BORD	41	F	1230.7	1231.2	.5	16	2		
	2800	OTTA	20	GRF	1353.0		97.0	7.2	3.6		
	2800	OTTA	8	S	1538.5	1538.5	.2	7.8			
	2800	OTTA	8	S	1547.0	1547.2	.3	4.2	2.0		
	2800	OTTA	22	GRF	1640.0	1652	200.0	18.2	7.0		
	9400	HUAN	20	GRF	1646.4	1702.6	65.1	11.3	7.1		O
	2800	OTTA	4	S/F	2021.2	2025	6.8	167.0	40.0		
	9400	HUAN	4	S/F	2021.4	2024.6	4.2	88.8	41.1		R
	2695	BOUL	4	SF	2022.0E	2025	5.0D	132	44		
	9400	HUAN	29	PBI	2025.6	2025.6	36.4	30.7	24.3		O
	2800	OTTA	30	PBI	2028.0	2028	35.0	14.4	7.0		
	2800	OTTA	45	C	2030.8	2031.7	5.0	9.4	8.0		
	2695	PENT	21	GRF	2115.0		95.0D	28.0			
	9400	HUAN	21	GRF	2132.5	2155.0	42.3	240.5	82.0		R
	2695	PENT	8	S	2138.4	2138.4	.1	31.0			
	100	HIRA	46	C	2139.0	2139.6	112.0	600	33		
	200	HIRA	46	C	2139.0	2144	22.0U	90	19		O
	100	HIRA			2139.0	2147.4		500			
	100	HIRA			2139.0	2231.0		380			
	2695	PENT	47	GB	2139.0	2151.8	31.0	920.0	281.0		
	9400	HUAN	45	C	2139.0	2151.2	15.5	393.8	210.0		R
	500	HIRA	46	C	2140.0	2152.3	28.0	350	50		
	1400	SYDN	2	S/F	2211.0	2211.1	.5				
	700	SYDN	2	S/F	2212.4	2212.6	.7				
	2695	PENT	4	S/F	2222.0	2225	4.0	12.6	5.0		
16	260	ONDR	44	NS	0810.0E		306.0D	172	21		
	127	TORN	43	NS	0955.0		240.0D		1.7		V1,INCOMPLETE
	202	IZMI	43	NS	1000.0		120.0	60			
	113	POTS	4	S/F	0701.0	0701.2	1.7	150	15		
	202	IZMI	4	S/F	0702.5	0703.0	1.3	70	40		
	2650	DWIN	45	C	0830.0	0830	2.0	130	30		
	930	BORD	41	F	0920.8	0920.9	.3	52	2		
	950	GORK	1	S	0944.1	0944.3	1.2	3.6			
	650	GORK	1	S	0944.2	0944.4	.7	5.1	3.5		
	3000	POTS	20	GRF	0950.0	1017.2	130.0	14			
	1470	POTS	20	GRF	0950.0	1003.5	160.0	10			
	9500	POTS	20	GRF	0955.0	1017.2	140.0	15			

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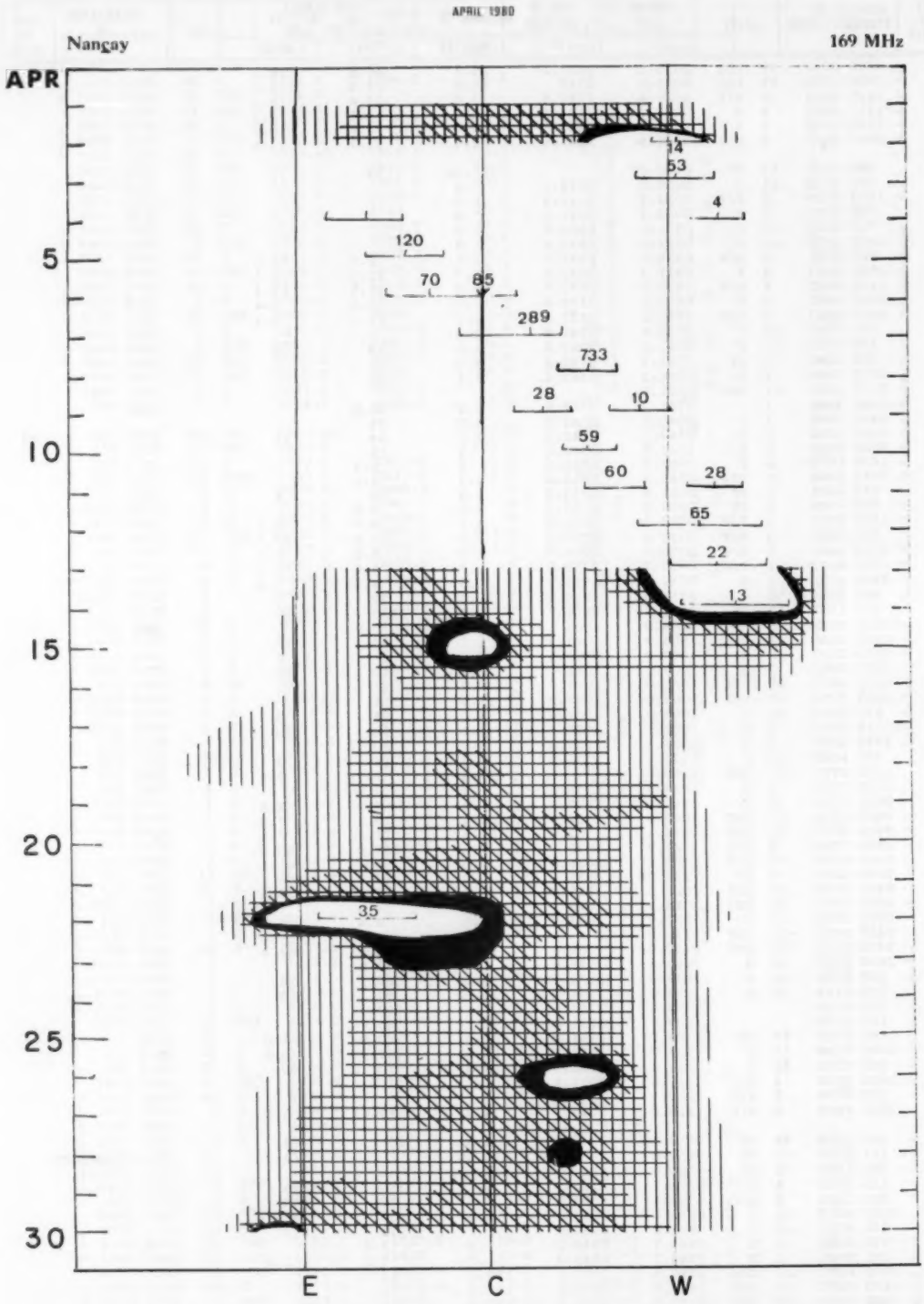
Apr 80

SOLAR RADIO EMISSION
INTERFEROMETRIC OBSERVATION



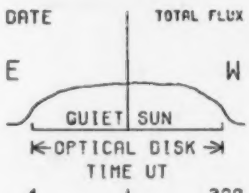
EAST-WEST SOLAR SCANS

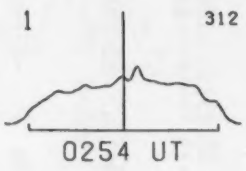
APRIL 1980

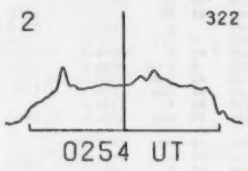
TOYOKAWA, JAPAN

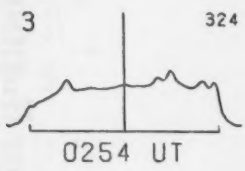
3 CM

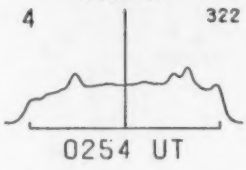
FAN BEAM WITH 1.1 MINUTES OF ARC

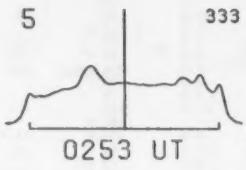


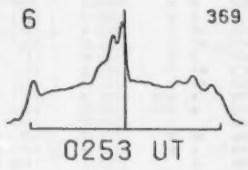


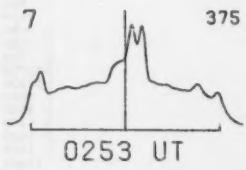


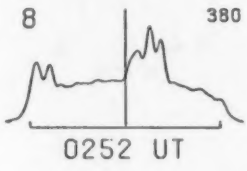


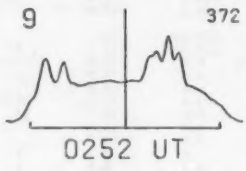


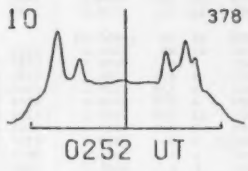


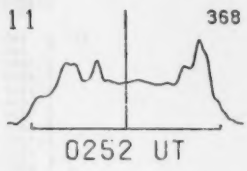


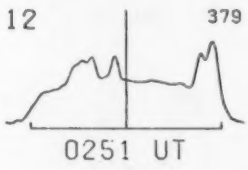


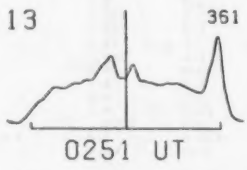


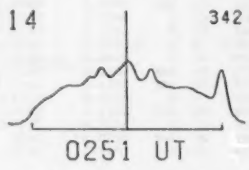


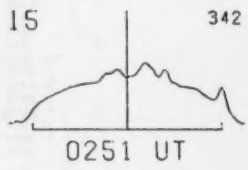


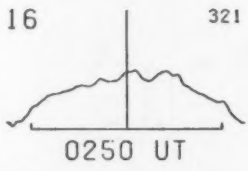


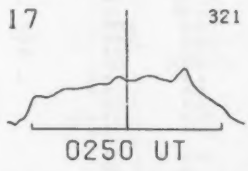


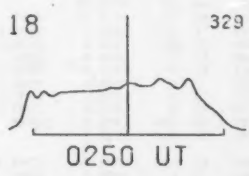


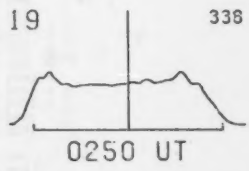


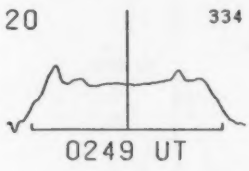


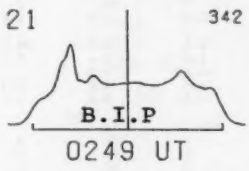


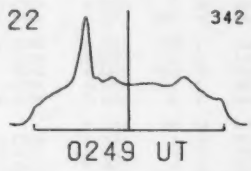


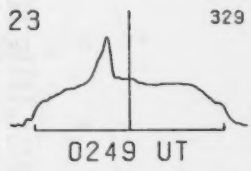


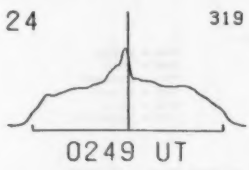


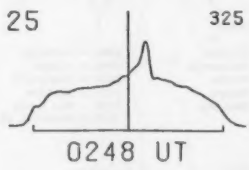


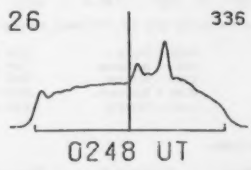


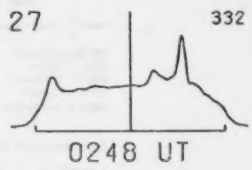


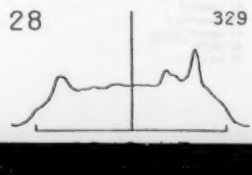


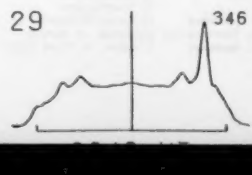


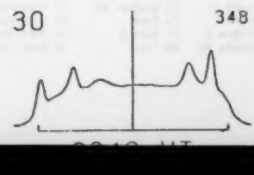












SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

NOVEMBER 1979

DAY OF MONTH	FREQUENCY	STATION	TYPE		STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	MEAN	INT	POLARIZATION OR REMARKS
21	536	ONDR	42	SER	1224.0	1242.7	24.0	15			
	7000	SAOP	40	F	1252.0		74.0				
	2800	OTTA	20	GRF	1350.0	1430	125.0	4.2	2.4		
	2800	OTTA	20	GRF	1605.0	1607	45.0	2.4	1.2		
22	260	ONDR	44	NS	0810.0E		338.0D	40	2		
	200	HIRA	44	NS	2120.0E	2211	280.0D	20	10		WR
	1415	MANI		S	0732.3	0732.4	3.0	3 52.9	10.1		
	606	MANI	4	S/F	0733.3	0733.6	1.0	41.8	13.9		
	228	HARS	45	C	0946.4	0946.4	.4	275	140		
	930	BORD	8	S	1051.0	1051.1	.2	21	2		
	33	UPIC	42	SER	1116.6	1151.5	83.6				
	29	UPIC	42	SER	1116.7	1127.2	86.2				
	7000	SAOP	40	F	1331.0		269.0				
	9400	HUAN	20	GRF	1751.5	1802.7	64.0	5.0	4.7		R
23	260	ONDR	44	NS	0800.0E		351.0D	11			
	200	HIRA	44	NS	2121.0E	2321	320.0D	10	5		WR
	100	HIRA	46	C	0502.0	0502.2	.9	105	60		
	536	ONDR	8	S	0906.4	0906.4	.3	35			
	3100	CRIM	3	S	1006.0	1011.5	20.0	60	20		
	7000	SAOP	45	C	1209.5	1211.4	5.2	165.0			1L
	2650	DWIN	45	C	1210.0	1211	7.0	60	30		
	930	BORD	3	S	1210.0	1212.2	9.0	28	10		
	10715	DWIN	45	C	1210.0	1211	7.0	100	40		
	10400	BERN	46		1210.2	1211.4	8.0	123.0			
	3000	POTS	4	S/F	1210.5	1211.5U	7.5	86 U			
	9500	POTS	4	S/F	1210.5	1211.2	11.0	122			
	9400	HUAN			1210.7	1211.8		167.6			
	9400	HUAN	45	C	1210.7	1211.4	6.4	174.8	69.8		L
	1470	POTS	3	S	1210.8	1212.3	16.0	58			
	10400	BERN	3		1233.1	1233.9	2.0	12.0			
	2800	OTTA	20	GRF	1335.0	1420	140.0	5.6	2.8		
	2800	OTTA	260	FAL	1720.0	1750	30.0	-3.8	-2.0		
24	260	ONDR	44	NS	0800.0E		360.0D	21			
	200	HIRA	43	NS	2240.0	0540	480.0D	35	5		WR
	2695	MANI	3	S	0258.1	0259.4	6.5	11.4	3.8		
	4995	MANI	4	S/F	0258.1	0259.1	6.5	33.3	11.1		
	1415	MANI	4	S/F	0258.2	0300.8	4.0	63.3	21.1		
	606	MANI	4	S/F	0258.9	0259.1	3.4	86.4	28.8		
	5730	INKU	21	GRF	0259.0	0259.5	6.0	26	10		L
	8800	MANI	4	S/F	0259.0	0259.3	4.7	51.0	17.0		
	17000	NOBE	3	S	0259.4	0300.0	4.8	28			0
	9100	GORK	1	S	0605.6	0606.0	.8	8	4		
	2950	GORK	1	S	0605.7	0606.0	5.3	8.7	4		
	9100	GORK	22	GRF	0608.1	0608.8	14.7	7			
	202	IZMI	41	F	0659.5	0700.0	2.0	235			
	202	IZMI	41	F	0716.2	0716.7	1.5	150			
	536	ONDR	8	S	0835.4	0835.4	.3	34			
	113	POTS	41	F	0946.6	0946.6	1.1	250	3		
	3000	POTS	20	GRF	1012.0	1017.3	18.0	6.2			
	1470	POTS	20	GRF	1014.0	1017.4	4.0	4.7			
	2950	GORK	1	S	1016.0	1017.0	2.0	4.5	2		
	9100	GORK	20	GRF	1016.1	1020.2	10.8	4.5			
	202	IZMI	41	F	1037.0	1039.5	9.5	2000			
	2800	OTTA	20	GRF	1550.0	1650	120.0	3.8	2.0		
	2800	OTTA	260	FAL	1800.0	1835	35.0	-3.4	-1.7		
25	260	ONDR	44	NS	0842.0E		321.0D	44	3		
	113	POTS	27	RF	0728.0E	0814	312.0D	15			
	113	POTS	4	S/F	1003.1	1006.8	5.8	1200	60		
	127	TORN	47	GB	1004.4	1006.8	4.6	1900	500		
	228	HARS	45	C	1004.6	1006.4	3.6	115	45		
	202	IZMI	41	F	1005.0	1006.5	3.7	330			
	2950	GORK	1	S	1005.1	1006.9	3.8	8.4	4		
	1470	POTS	3	S	1005.5	1007.0	3.0	9.4			
	3000	POTS	3	S	1005.5	1007.0	3.0	10			
	2800	OTTA	20	GRF	1350.0	1425	75.0	3.4			
	2800	OTTA	22	GRF	1525.0		165.0	3.4			
26	260	ONDR	42	SER	1040.0	1044.4	24.0	19			
	536	ONDR	3	S	1043.0	1043	.2	29			
	930	BORD	41	F	1212.8	1213.3	.5	24	2		
	9400	HUAN	20	GRF	1743.7	1843.8	84.6	11.3	5.4		0
29	606	MANI	4	S/F	0523.0	0523.3	1.6	110.7	36.9		
	1415	MANI	2	S/F	0523.0	0523.3	1.6	6.4	2.1		
	2695	PENT	21	GRF	2040.0	2120	60.0D	4.2			
	2800	OTTA	2	S/F	2051.0	2052.5	3.0	6.6	3.3		
	9400	HUAN	1	S	2051.3	2052.8	4.0	8.2	4.1		0
30	260	ONDR	43	NS	0920.0		270.0D	27			
	113	POTS	41	F	1202.3	1203.4	1.2	100	1		
	930	BORD	41	F	1514.5	1514.8	.5	105	2		
	930	BORD	41	F	1547.7	1548.1	.5	40	2		
	2800	OTTA	20	GRF	1735.0	1815	85.0	2.2	1.1		

Reports are received routinely from the following observatories:

ARCE = Arcetri
BERN = Berne
BORD = Bordeaux
CRIM = Crimea
DWIN = Dwingeloo
GORK = Gorky
HARS = Harestua
HIRA = Hiraiso
HUAN = Huancayo
INKU = Irkutsk
IZMI = IZMIRAN
KISV = Kislovodsk
MANI = Manila
NAGO = Nagoya
NOBE = Nobeyama
ONDR = Ondrejov
OTTA = Ottawa
PENT = Penticton
POTS = Potsdam
SOAP = Sao Paulo
SOMR = Sagamore Hill
SYDN = Sydney
TORN = Torun
TOYO = Toyokawa
TRST = Trieste
UPIC = Upice
VORO = Voroshilov

Explanation of Type Code:

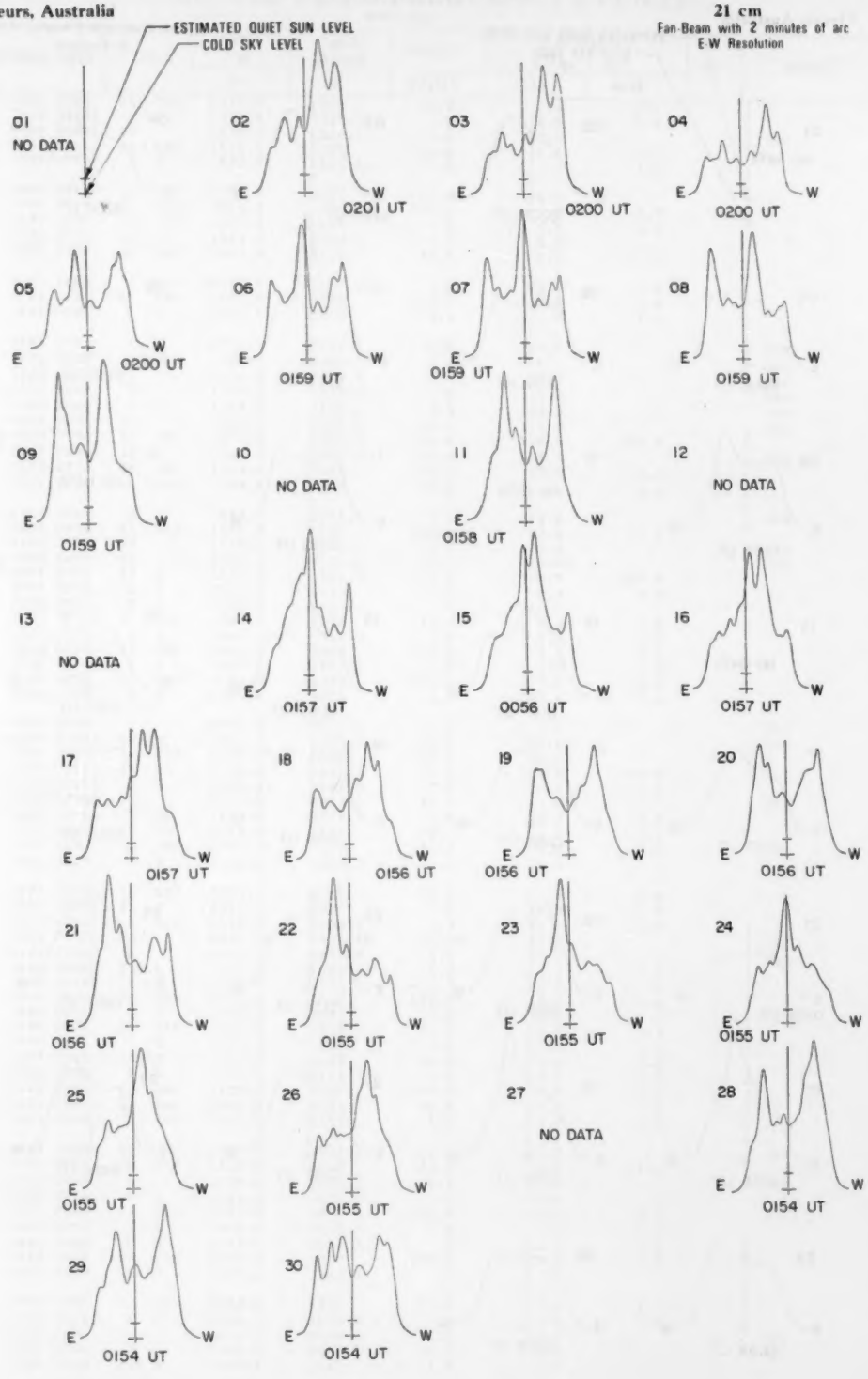
1 Simple 1
2 Simple 1F
3 Simple 2
4 Simple 2F
5 Simple
6 Minor
7 Minor +
8 Spike
20 Simple 3
21 Simple 3A
22 Simple 3F
23 Simple 3AF
24 Rise
25 Rise A
26 Fall
27 Rise and Fall
28 Precursor
29 Post Burst Increase
30 Post Burst Increase A
31 Post Burst Decrease
32 Absorption
40 Fluctuation
41 Group of Bursts
42 Series of Bursts
43 Onset of Noise Storm
44 Noise Storm in Progress
45 Complex
46 Complex F
47 Great Burst
48 Major
49 Major +

EAST-WEST SOLAR SCANS

APRIL 1980

Fleurs, Australia

21 cm
Fan-Beam with 2 minutes of arc
E-W Resolution

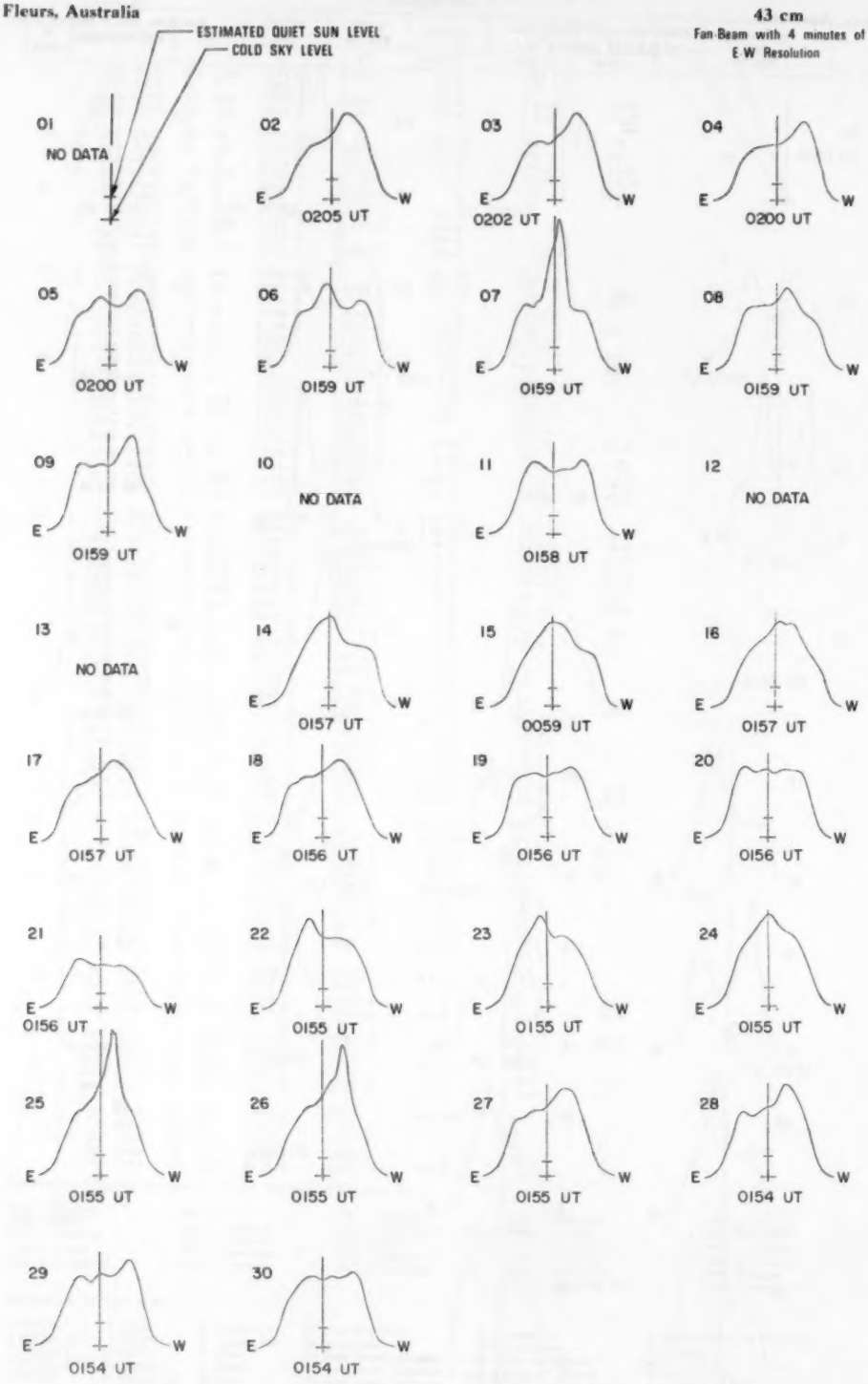


EAST-WEST SOLAR SCANS

APRIL 1980

Fleurs, Australia

43 cm
Fan-Beam with 4 minutes of arc
E-W Resolution



SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

APRIL 1980

DAY OF MONTH	FREQUENCY	STATION	TYPE	STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1}		INT	REMARKS
				UT	UT	MINUTES	PEAK	MEAN		
01	2800	OTTA	21 GRF	1317.0	1322	11.0	2.4	1.2		
	2800	OTTA	1 S	1319.0	1319.4	1.0	2.8	1.4		
	8400	BERN	22	1524.5	1526.3	5.0	22.0			OPR
	2800	OTTA	20 GRF	1525.0	1543	55.0	4.4	2.2		
	2800	OTTA	1 S	1801.0	1801.2	1.0	2.6	1.3		
02	2800	OTTA	22 GRF	1700.0	1703	30.0	4.0			
	2800	OTTA	21 GRF	1915.0	1955	165.0	11.0	5.0		
	2800	OTTA	2 S/F	1945.0	1946	1.5	4.8	2.4		
	2800	OTTA	40 F	1949.0	1950.5	4.0	9.6			
	2800	OTTA	20 GRF	2110.0	2116	35.0	4.0	1.7		
03	2695	PENT	4 S/F	0117.0	0117.7	4.0	22.0	7.4		
	2800	OTTA	21 GRF	2000.0	2100	150.0	6.8	3.0		
	2800	OTTA	1 S	2043.5	2045	3.5	2.6	1.3		
04	8400	BERN	1	0721.7	0722.1	1.0	11.0			OPR
	8400	BERN	1	1101.1	1102.5	2.5	6.0			OPR
	8400	BERN	3	1126.0	1126.5	2.5	17.0			OPR
	8400	BERN	3	1139.3	1139.9	2.5	34.0			OPR
	8400	BERN	3	1149.9	1151.1	3.5	23.0			OPR
	8400	BERN	22	1154.0	1200.8	16.5	11.0			OPR
	2800	OTTA	47 GB	1454.0	1507.5	60.0	550.0	108.0		
	8400	BERN	20	1502.0	1507.4	86.0	115.0			OPR
	2800	OTTA	30 PBI	1554.0	1554	220.0	20.6	8.6		
	2800	OTTA	20 GRF	1730.0	1740	40.0	6.0	3.0		
05	8400	BERN	3	1040.9	1041.5	2.5	31.0			OPR
	2800	OTTA	21 GRF	1405.0	1607	330.0	20.6	11.0		
	8400	BERN	22	1448.4	1452.8	8.5	25.0			OPR
	8400	BERN	46	1514.5	1552.6	36.0	170.0D			OPR
	2800	OTTA	45 C	1542.0	1551.5	25.0	375.0	107.0		
	2800	OTTA	1 S	1612.8	1613	1.2	6.4	3.0		
	2800	OTTA	8 S	1746.7	1747	.5	18.6			
	2800	OTTA	21 GRF	1840.0	1850	45.0	5.2	3.0		
	2800	OTTA	1 S	1852.3	1854.3	5.0	5.6	2.5		
	2800	OTTA	21 GRF	1940.0	2000	110.0	4.2	2.1		
	2800	OTTA	1 S	1956.0	1956.3	1.0	3.8	1.9		
	2800	OTTA	21 GRF	2144.0	2222	165.0	7.8	3.9		
	2800	OTTA	3 S	2255.8	2256	2.0	22.4	7.4		
06	8400	BERN	1	0611.7	0612.6	2.5	9.0			OPR
	8400	BERN	46	1412.3	1426.5	98.0	150.0D			OPR
	2800	OTTA	21 GRF	1419.0E	1630	290.0	25.2			
	2800	OTTA	47 GB	1420.0	1436.5	78.0	680.0	162.0		
	2800	OTTA	3 S	1540.3	1542.5	7.0	19.6	6.6		
	8400	BERN	20	1622.6	1624.3	42.5	32.0			OPR
	2800	OTTA	3 S	1623.3	1624.8	4.0	20.0	6.8		
	2695	PENT	20 GRF	2110.0	2145	80.0	4.0	2.4		
	2695	PENT	21 GRF	2307.0	2310	35.0	6.0	3.0		
	2695	PENT	8 S	2324.0	2324.3	.4	10.6			
07	2695	PENT	21 GRF	0047.0	0100	45.0	11.8	5.9		
	2695	PENT	45 C	0051.5	0054	3.0	27.8	10.0		
	2695	PENT	4 S/F	0139.0	0139.5	1.3	37.6	12.6		
	8400	BERN	20	0531.0U	0542.4U	54.0U	41.0			OPR
	8400	BERN	3	1034.7	1035.0	4.5	14.0			OPR
	2800	OTTA	240 R	1317.0	1320	3.0	3.0	1.5		
	2800	OTTA	1 S	1514.0	1515	2.2	1.8	.9		
	2800	OTTA	21 GRF	1540.0	1610	140.0	10.0	5.0		
	2800	OTTA	1 S	1602.5	1603	3.0	3.2	1.5		
	2800	OTTA	21 GRF	1835.0	1855	45.0	4.8	2.4		
	2800	OTTA	1 S	1842.3	1844	4.0	7.0	3.2		
	2800	OTTA	240AR	2107.0	2140	33.0	4.0	2.0		
	2800	OTTA	1 S	2112.5	2114.2	3.0	2.4	1.2		
	2800	OTTA	20 GRF	2150.0	2227	120.0	8.0	4.0		
	2695	PENT	21 GRF	2351.0	2405	38.0	4.0	2.0		
	2695	PENT	4 S/F	2355.5	2357	4.0	13.0	5.0		
08	8400	BERN	41	1215.3	1231.0	23.0	12.0			OPR
	2800	OTTA	20 GRF	1440.0	1510	75.0	4.6	2.3		
	8400	BERN	3	1625.0	1625.3	4.5	11.0			OPR
	2800	OTTA	8 S	1625.2	1625.2	.2	20.0			
	2800	OTTA	21 GRF	1705.0	1850	190.0	10.2	5.1		
	2800	OTTA	1 S	1810.0	1810.4	1.0	2.8	1.0		
	2800	OTTA	8 S	1854.0	1854.2	.4	2.4	1.2		
	2800	OTTA	23 GRF	2050.0	2220	170.0	9.0	5.0		
	2695	PENT	8 S	2243.1	2243.7	.5	12.6			
09	2695	PENT	21 GRF	0000.0	0035	75.0	4.4	2.6		
	2695	PENT	8 S	0020.7	0020.8	.5	4.2	2.1		
	8400	BERN	1	0639.6	0639.9	2.5	10.0			OPR
	8400	BERN	3	0956.4	0959.1	12.5	9.0			OPR
	2800	OTTA	240 R	1500.0	1517	17.0	2.6	1.3		

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

APRIL 1980

DAY OF MONTH	FREQUENCY	STATION	TYPE	STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1}		INT	REMARKS
				UT	UT	MINUTES	PEAK	MEAN		
09	2800	OTTA	21 GRF	1535.0	1640	130.0	5.0			
	2800	OTTA	1 S	1633.0	1633.2	1.0	3.2			
	2800	OTTA	8 S	1837.5	1838	.8	4.2	2.1		
	2800	OTTA	45 C	2227.0	2231.2	9.0	10.6	6.2		
10	8400	BERN	46	0915.0	0921.0	45.0	97.0			OPR
	2800	OTTA	1 S	1422.8	1423.5	1.0	3.0	1.5		
	2800	OTTA	4 S/F	1608.3	1608.8	1.5	39.0	9.6		
	8400	BERN	1	1608.5	1609.1	1.0	10.0			OPR
	2800	OTTA	20 GRF	1627.0	1629.9	11.0	5.2	1.8		
	8400	BERN	46	1721.9	1724.5	5.0	87.0			OPR
	2800	OTTA	4 S/F	1722.5	1724.8	6.5	28.4	14.2		
	2800	OTTA	30 PBI	1729.0	1729	150.0	10.4	5.2		
	2800	OTTA	1 S	1940.0	1941.2	2.0	2.6	1.2		
	2800	OTTA	34 P	2005.0	2010	25.0	4.4	2.2		
	2800	OTTA	27A RF	2005.0		205.0	4.4	3.6		
	2800	OTTA	24P R	2030.0		135.0	4.4			
	2800	OTTA	20 GRF	2148.0	2159	50.0	13.2	5.6		
	2800	OTTA	26 FAL	2245.0	2310	45.0	-4.4	-2.2		
11	8400	BERN	22	0902.7	0907.4	39.0	31.0			OPR
	2800	OTTA	3 S	1310.8	1311	2.0	18.6	6.2		
	2800	OTTA	4 S/F	1347.4	1349.8	4.6	15.4	7.0		
	2800	OTTA	29 PBI	1352.0	1352	11.0	5.0	2.5		
	2800	OTTA	1 S	1510.5	1511.5	2.0	5.6	2.8		
	2800	OTTA	21 GRF	1725.0	1755	145.0	14.2	7.1		
	2800	OTTA	4 S/F	1725.5	1726	1.8	21.5	10.8		
	8400	BERN	4	1725.6	1726.1	1.5D	27.0U			OPR
	2800	OTTA	4 S/F	1821.0	1821.4	2.0	33.6	9.0		
	2800	OTTA	26O FAL	1955.0	2010	15.0	-4.2	-2.1		
	2800	OTTA	21 GRF	2115.0	2315	245.0	16.0	7.4		
	2800	OTTA	3 S	2139.0	2140	2.0	13.0	6.5		
	2800	OTTA	30 PBI	2141.0	2141	10.0	3.4	1.7		
	2800	OTTA	3 S	2142.6	2142.8	1.0	100.0	10.0		
	2800	OTTA	1 S	2144.0	2144	1.0	4.2	2.0		
	2695	PENT	1 S	2253.7	2300.5	3.0	6.2	3.1		
12	8400	BERN	4	0553.4	0558.2	7.6	22.0			OPR
	8400	BERN	3	0930.8	0940.1	2.5	7.0			OPR
	2800	OTTA	1 S	1337.5	1338.2	2.0	6.2	3.1		
	8400	BERN	3	1401.0	1402.4	25.6	18.0			OPR
	8400	BERN	3	1428.2	1428.4	2.7	13.0			OPR
	2800	OTTA	3 S	1430.0	1431	2.0	10.4	4.0		
	2800	OTTA	21 GRF	1910.0	2000	160.0	12.2	6.0		
	2800	OTTA	22 GRF	1941.0	1945	14.0	12.0	5.0		
	2800	OTTA	46F C	2038.0	2047	19.0	83.6	29.6		
	2695	PENT	21 GRF	2210.0	2255	140.0	10.4	5.0		
	2800	OTTA	46F C	2226.0	2227.2	5.0	88.0	30.0		
	2695	PENT	1 S	2239.0	2240	2.0	5.4	2.7		
	2695	PENT	1 S	2300.3	2300.7	1.0	5.0	2.5		
	2695	PENT	3 S	2302.0	2302.8	1.5	24.0	8.0		
13	8400	BERN	22	0833.4	0838.1	18.0	18.0			OPR
	8400	BERN	3	0903.3	0904.2	6.0	56.0			OPR
	8400	BERN	1	1002.2	1004.4	7.0	10.0			OPR
	2800	OTTA	3 S	1229.5	1230	2.0	15.4	5.2		
	2800	OTTA	1 S	1237.0	1237.8	1.2	4.2	2.1		
	2800	OTTA	22 GRF	1330.0	1450	190.0	5.2	3.0		
	2800	OTTA	20 GRF	1725.0	1800	65.0	5.2	3.8		
	2800	OTTA	21 GRF	1845.0	1950	135.0	4.6	2.3		
	2800	OTTA	40 F	1851.0	1851.1	4.0	5.2			
	2800	OTTA	1 S	1955.0	1955.5	2.0	6.2	3.1		
	2800	OTTA	21 GRF	2120.0	2135	45.0	6.8	3.4		
	2800	OTTA	1 S	2133.5	2134	1.0	4.2	2.1		
	2695	PENT	3 S	2247.0	2248	2.0	16.8	6.0		
	2695	PENT	20 GRF	2305.0	2320	95.0	4.2	2.1		
14	2800	OTTA	8 S	1152.5	1152.7	.5	3.2	1.6		
	2800	OTTA	8 S	1153.3	1153.4	.5	10.8	5.4		
	2800	OTTA	20 GRF	1158.0	1210	27.0	3.2	1.6		
	2800	OTTA	20 GRF	1227.0	1330	205.0	5.2	2.6		
	2800	OTTA	26O FAL	1755.0	1855	60.0	-4.2	-2.1		
	2800	OTTA	21 GRF	2003.0	2036	85.0	13.0	4.4		
	2800	OTTA	3 S	2004.0	2005.3	6.0	92.0	23.0		
	2800	OTTA	2 S/F	2031.0	2032	4.0	8.6	5.0		
	2800	OTTA	40 F	2135.0	2141.8	9.0	30.0			
	2695	PENT	26O FAL	2220.0	2350	90.0	-8.4	-4.2		
15	8400	BERN	3	0548.3	0549.0	2.0	22.0			OPR
	2800	OTTA	21 GRF	1508.0	1500	135.0	8.4	4.8		
	2800	OTTA	4 S/F	1508.5	1510.5	8.0	126.0	37.0		
	8400	BERN	46	1508.8	1511.2	7.0	53.0			OPR
	2800	OTTA	26O FAL	1820.0	1840	20.0	-4.6	-2.3		
	2800	OTTA	20 GRF	1920.0	1933	55.0	5.6	2.0		
16	2800	OTTA	20 GRF	1700.0	1717	60.0	3.2	1.6		

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

APRIL 1980

DAY OF MONTH	FREQUENCY	STATION	TYPE	STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1}		INT	REMARKS
				UT	UT	MINUTES	PEAK	MEAN		
17	2800	OTTA	20 GRF	2000.0	2110	150.0	4.2	2.4		
	2695	PENT	8 S	2314.2	2314.5	.8	6.8	3.4		
18	2800	OTTA	21 GRF	2000.0	2046	105.0	4.0	2.0		
	2800	OTTA	1 S	2001.5	2002.5	2.5	5.0	3.4		
	2800	OTTA	1 S	2043.5	2044	2.0	2.4	1.2		
19	2800	OTTA	22 GRF	1500.0	1550	170.0	3.4	1.7		
20	2800	OTTA	8 S	1956.0	1956.1	.7	2.8			
	2800	OTTA	20 GRF	2130.0	2210	95.0	4.6	2.3		
21	2800	OTTA	20 GRF	1320.0	1405	80.0	5.4			
	2800	OTTA	20 GRF	1510.0	1555	80.0	2.8	1.4		
22	2800	OTTA	27A RF	1120.0		250.0	10.0	7.7		
	2800	OTTA	24 R	1120.0	1155	35.0	10.0	5.2		
	2800	OTTA	24P R	1155.0		135.0	10.0			
	2800	OTTA	1 S	1354.0	1357.5	8.0	5.4	1.8		
	2800	OTTA	26 FAL	1410.0	1530	80.0	-10.0	-5.0		
	2800	OTTA	8 S	1505.2	1505.2	.1	6.4			
	2800	OTTA	26O FAL	2040.0	2100	20.0	-3.6	-1.8		
	2800	OTTA	26O FAL	2155.0	2240	45.0	-2.8	-1.4		
23	2800	OTTA	20 GRF	1727.0	1730	15.0	4.4	1.5		
	2800	OTTA	20 GRF	1755.0	1800	20.0	4.4	2.2		
24	8400	BERN	3	0557.4	0557.8	4.0	23.0			OPR
	2800	OTTA	22 GRF	1140.0	1320	300.0	9.6	4.5		
	2800	OTTA	20 GRF	1750.0	1810	110.0	11.8	5.4		
	2800	OTTA	24O R	2010.0	2120	70.0	4.0	2.0		
26	2800	OTTA	27A RF	1130.0		330.0	3.6	3.4		
	2800	OTTA	24 R	1130.0	1150	20.0	3.6	1.8		
	2800	OTTA	2 S/F	1144.0	1144.8	4.0	5.6	2.4		
	2800	OTTA	24P R	1150.0		295.0	3.6			
	2800	OTTA	1 S	1245.6	1245.9	1.0	4.4	2.2		
	2800	OTTA	21 GRF	1323.0	1355	77.0	5.6			
	2800	OTTA	1 S	1337.0	1338	5.0	2.6	1.3		
	2800	OTTA	26 FAL	1645.0	1700	15.0	-3.6	-1.8		
	2800	OTTA	3 S	1737.5	1738	1.5	26.6	11.2		
	2800	OTTA	21 GRF	1930.0	1934	14.0	5.6	2.0		
	2800	OTTA	4 S/F	1931.5	1931.6	1.2	12.0			
	2800	OTTA	4 S/F	2031.2	2032.3	4.8	128.0	49.0		
	2800	OTTA	30 PBI	2036.0	2036	20.0	9.2	4.5		
	2800	OTTA	8 S	2039.0	2039.2	.5	2.4	1.2		
	2800	OTTA	2 S/F	2136.5	2137	1.5	3.6	1.8		
	2695	PENT	2 S/F	2254.8	2255	1.0	9.8	5.0		
27	2695	PENT	1 S	0025.8	0026.3	2.0	6.4	3.2		
	2800	OTTA	21 GRF	1440.0	1615	180.0	8.0	5.0		
	2800	OTTA	45 C	1441.5	1452	18.5	9.4	5.0		
	2800	OTTA	1 S	1511.0	1512	2.0	4.6	2.3		
	2800	OTTA	1 S	1537.7	1539.2	2.0	4.6	2.0		
	2800	OTTA	1 S	1629.9	1630.1	1.0	4.6	2.3		
	2800	OTTA	24O R	1840.0	1855	15.0	4.4	2.2		
	2800	OTTA	40 F	1928.5	1931	3.5	3.2			
	2800	OTTA	1 S	2047.9	2048.1	1.5	3.9	1.8		
28	8400	BERN	3	0900.2	0902.2	4.0	20.0			OPR
	8400	BERN	1	1038.1	1038.3	1.0	10.0			OPR
	2800	OTTA	1 S	1136.0	1136.2	1.0	3.0	1.5		
	8400	BERN	4	1202.1	1203.9	11.8	100.0			OPR
	2800	OTTA	3 S	1203.0	1204.5	4.0	154.0	39.4		
	2800	OTTA	29 PBI	1207.0	1207	5.0	7.0	2.4		
	2800	OTTA	1 S	1227.0	1228	2.5	2.6	1.6		
	2800	OTTA	21 GRF	1234.0	1325	155.0	8.2	5.2		
	8400	BERN	45	1235.4	1238.5	20.2	30.0			OPR
	2800	OTTA	4 S/F	1236.5	1239	4.0	50.0	20.0		
	2800	OTTA	3 S	1244.0	1244.7	4.0	37.4	13.1		
	8400	BERN	3	1533.2	1534.0	1.4	10.0			OPR
	2800	OTTA	1 S	1533.5	1534.5	2.0	3.0	1.5		
	2800	OTTA	21 GRF	1703.0	1740	120.0	10.4	6.0		
	8400	BERN	45	1703.8	1707.0	15.7	40.0			OPR
	2695	PENT	3 S	1706.2	1707.3	3.0	19.6	6.6		
	2800	OTTA	1 S	1718.2	1718.5	1.5	4.0	1.6		
	8400	BERN	22	1726.3	1730.6	10.2	25.0			OPR
	2800	OTTA	1 S	1758.0	1758.5	1.5	3.4	1.7		
	2800	OTTA	24 R	1940.0	2000	20.0	4.2	2.1		
	2800	OTTA	27AFRF	1940.0		195.0	4.2	3.4		
	2800	OTTA	8 S	1952.9	1952.9	.1	4.2			
	2800	OTTA	24P R	2000.0		125.0	4.2			
	2800	OTTA	3 S	2039.0	2040	5.0	119.0	13.7		
	2800	OTTA	3 S	2115.8	2116.6	6.5	77.0	13.0		

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

APRIL 1980

DAY OF MONTH	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY MEAN	INT	REMARKS
28	2800	OTTA	26 FAL	2205.0	2255	50.0	-4.2	-2.1		
	2695	PENT	21 GRF	2300.0	2330	70.0	2.5	1.3		
	2695	PENT	1 S	2308.0	2308.2	1.0	3.4	1.2		
	2695	PENT	1 S	2315.0	2315.4	1.0	2.0	1.0		
29	2800	OTTA	24 R	1135.0	1145	10.0	4.0	2.0		
	2800	OTTA	27A RF	1135.0		345.0	4.0			
	2800	OTTA	24P R	1145.0		305.0	4.0			
	2800	OTTA	28 PRE	1215.0	1240	35.0	30.0	9.7		
	8400	BERN	45	1239.6	1307.2	160.0	77.0			OPR
	2800	OTTA		1251.0	1254.2	9.0	148.0			
	2800	OTTA	45 C	1251.0	1305	124.0	255.0	99.0		
	2800	OTTA		1300.0	1305	37.0	255.0			
	2800	OTTA		1337.0	1410	78.0	130.0			
	2800	OTTA	30 PBI	1455.0	1455	75.0	18.6	4.6		
	2800	OTTA	40 F	1601.0	1602.3	2.0	12.4			
	2800	OTTA	26 FAL	1650.0	1720	30.0	-4.0	-2.0		
	2800	OTTA	27AFRF	1800.0		180.0	3.2	2.4		
	2800	OTTA	24 R	1800.0	1815	15.0	3.2	1.6		
	2800	OTTA	24P R	1815.0		150.0	3.2			
	2800	OTTA	40 F	1825.8	1828.6	5.0	296.0			
	2800	OTTA	3 S	2020.0	2021.2	4.0	18.5	5.0		
	2800	OTTA	26 FAL	2045.0	2100	15.0	-3.2	-1.5		
	2800	OTTA	20 GRF	2125.0	2135	105.0	3.2	2.4		
30	8400	BERN	1	1101.7	1103.0	3.5	10.0			OPR
	2800	OTTA	20 GRF	1140.0	1155	55.0	4.5	2.3		
	2800	OTTA	20 GRF	1250.0	1255	40.0	5.2	2.1		
	2800	OTTA	1 S	1343.0	1444.5	2.0	8.2	3.8		
	2800	OTTA	20 GRF	1515.0	1533	28.0	3.2	1.6		
	8400	BERN	4	1547.8	1549.0	2.6	15.0			OPR
	2800	OTTA	4 S/F	1548.2	1548.6	2.0	10.4	5.0		
	2800	OTTA	23 GRF	1605.0	1837	220.0	5.5	3.5		
	8400	BERN	1	1621.9	1622.4	1.0	8.0			OPR
	2800	OTTA	1 S	1622.1	1622.7	1.0	2.4	1.2		
	2800	OTTA	21 GRF	2020.0	2050	115.0	4.2	3.5		
	2800	OTTA	3 S	2022.2	2023.3	4.0	14.5	5.0		
	2800	OTTA	21 GRF	2230.0	2240	45.0	3.5	1.8		
	2695	PENT	8 S	2244.6	2244.6	.1	3.2			

Observatories:

BERN = Berne BOUL = Boulder MANI = Manila OTTA = Ottawa ARO PENT = Penticton SGMR = Sagamore Hill

Explanation of Type Code:

1 Simple 1	6 Minor	22 Simple 3F	27 Rise and Fall	32 Absorption	44 Noise Storm in Progress
2 Simple 1F	7 Minor +	23 Simple 3AF	28 Precursor	40 Fluctuation	45 Complex
3 Simple 2	8 Spike	24 Rise	29 Post Burst Increase	41 Group of Bursts	46 Complex F
4 Simple 2F	20 Simple 3	25 Rise A	30 Post Burst Increase A	42 Series of Bursts	47 Great Burst
5 Simple	21 Simple 3A	26 Fall	31 Post Burst Decrease	43 Onset of Noise Storm	48 Major
					49 Major +

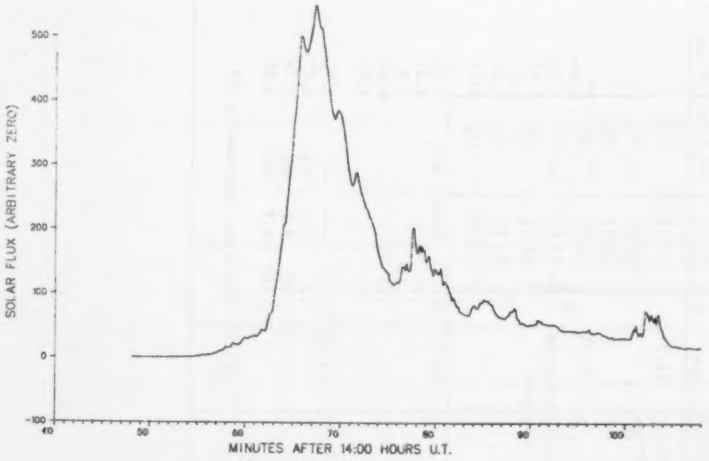
NOTE: U.S. Air Weather Service RSTN data still not available at this time. Some computer problems are still being worked on at NGSDC. Because the problems are relatively minor, we are hopeful that they will be solved shortly. We ask for your patience in the interim.

SELECTED SOLAR NOISE BURSTS

APRIL 4-6, 1980

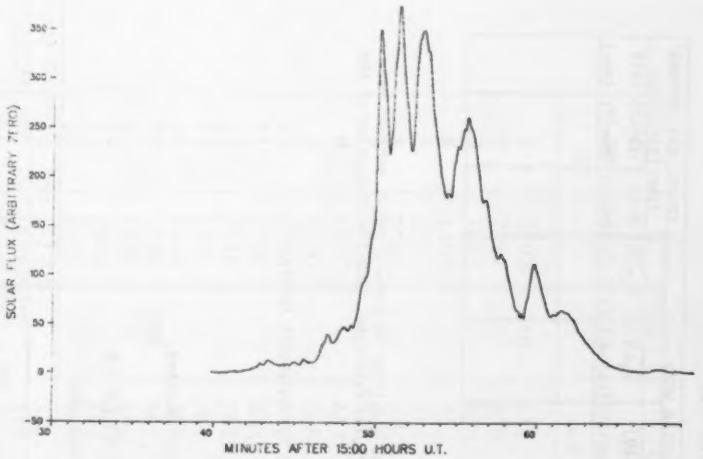
APRIL 4, 1980

SELECTED 2800 MHz SOLAR NOISE BURST
A.R.O. OTTAWA, ONT.
CANADA



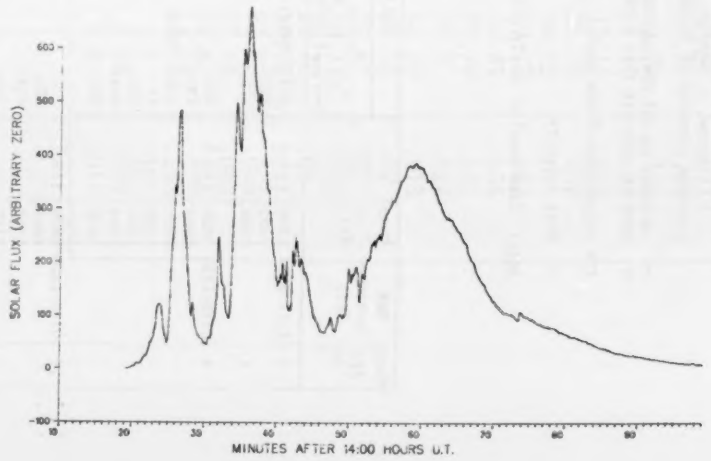
APRIL 5, 1980

SELECTED 2800 MHz SOLAR NOISE BURST
A.R.O. OTTAWA, ONT.
CANADA



APRIL 6,1980

SELECTED 2800 MHz SOLAR NOISE BURST
A.R.O. OTTAWA, ONT.
CANADA



PIONEER VII

APRIL 1980

Date Apr '80	DSN Coverage (UT)	Data Time (UT)	ESP (°)	SOLAR WIND AMES[1] U_{H^+} (km/sec)	SOLAR WIND AMES[1] TAU (days)	SOLAR WIND MIT[2] U_{H^+} (km/sec)	SOLAR WIND MIT[2] N_{H^+} (H^+/cc)	COSMIC RAY PROTONS[3] (particles/sec) 6-13 (Mev*)	13-175 (Mev**)	>175 (Mev)
11	0825-1349	0900	103.7	341.	7.2					
		1000		341.						
		1100		341.						
		1200		341.						
		1300		341.						
		1400		341.						

[1] Wolfe NASA/ARC
[2] Simpson - University of Chicago

* Includes He 0.6-13 Mev/nucleons and electrons ~0.5 Mev - see J. Retzler and J. A. Simpson, J. Geophys. Res., 74, 9, 2149-2160, 1969 for discussion of the electron response of Pioneer VII.

** Includes He >13 Mev/nucleons.
Q Used to indicate that a rate is at its quiescent level.

ESP = Earth-Sun Probe Angle.

† Peak velocity.

Note: Data sampled hourly unless otherwise noted.

PIONEER IX

APRIL 1980

Date Apr '80	DSN Coverage (UT)	Data Time (UT)	ESP (°)	SOLAR WIND[1] U_{H^+} (km/sec)	N_{H^+} (H^+/cc)	T_{H^+} (x10^{6}°K)	TAU (days)	IP B-FIELD[2] 400 Hz (mv)	IMF[3] |B| (γ)	IMF[3] φ (°)	COSMIC RAY PROTONS[4] (particles/sec) >13.9 Mev	>40 Mev
3	2257-0058	2300	149.5	325.	Note: Wolfe only		11.3					
		2400		325.	turned on.							
4		0100		325.								
9	0739-1354	0800	149.7	430.			11.3		---	---	---	---
		0900		430.				0.3			4.48	0.75
		1000		430.	Note: Sonett off-considered			.29	---	---	4.48	.79
		1100		417.	noisy & affecting			.17			4.33	.7
		1200		404.	Wolfe.			.2			4.4	.74
		1300		404.				.2			4.44	.76
		1400		404.				.17	---	---	4.42	.77
17	0731-1220	0800	150.1	376.			11.3	0.11	Sonett off		4.26	0.83
		0900		404.				.11			4.37	.73
		1000		404.				.117			4.3	.74
		1100		404.				.12			4.41	.81
		1200		404.				.11			4.46	.8
22	0923-1331	1000	150.15	468.			11.33	0.15	---	---	3.73	0.69
		1100		486.				.2	9.6	065.	3.73	.65
		1200		486.				.19	9.6	057.	3.76	.71
		1300		468.				.187	9.9	026.	3.81	.73
30	2310-2400	2300	150.6	630.			11.37	All other instruments off.				
		2400		630.								

[1] Wolfe - NASA/ARC
[2] Scarf - TRW, Inc.
[3] Sonett and Colburn - NASA/ARC
[4] Webber - Univ. of N. H.

ESP = Earth-Sun Probe Angle.

Data sampled hourly unless otherwise noted.

* 1700-2000 data not usable.

** Peak velocity-Wolfe's least squares analysis not done. The extremely low N_{H+} during this coverage caused the Least Squares program to fail.

PIONEER XII

DATE APR '80	TIME (UT)	ESV (°)	U_{H+} (Km/sec)	N_{H^+} (H^+/CC)	T_{H^+} (x10^6°K)
1	2303	048.	517.	10.39	0.188
2	2344		425.	13.66	.009
3	1817		439.	21.76	.082
4	1359		378.	8.66	.06
5	2311		367.	42.88	.034
6	2040		425.	8.07	.096
7	1822		336.	29.68	.071
8	1932		467.	14.87	.127
9	2200		406.	5.95	.134
10	2054		390.	17.12	.164
11	2356		338.	15.13	.054
12	2349		264.	35.76	.037
13	1341		267.	34.29	.053
14	2333		311.	49.13	.082
15	1826	039.	341.	30.41	.164
16	2155		418.	23.79	.049
17	1909		283.	34.7	.027
18	1757		308.	62.59	.013
19	1412		330.	23.51	.02
20	1838		319.	32.42	.06
21	0506		267.	30.71	.038
22	1349		390.	27.76	.05
23	1002		323.	17.75	.041
24	2000		306.	21.83	.056
25	1656		318.	22.41	.053
26	1904		335.	25.63	.144
27	2124		386.	16.42	.153
28	1236		471.	3.7	.18
29	2113		381.	2.65	.039
30	2101		329.	9.7	.016

STANFORD MEAN SOLAR MAGNETIC FIELD

BARTELS ROTATION	DATE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
1991	MAR 14	□		□	□		■	■	■		■	■	■		■	■	■	■	■	■	□	□	□	□	□	□	□	□
1992	APR 10	□	□	□	□	■	■		■	■	■	■	■	■	■			■	■	■		□	□	□	□	□	□	□
1993	MAY 7	□	□	□	□	□	■	■	■				■	■	■	■	■	■	■	■	■	■	■	□	□	□	□	□
1994	JUN 3	□	□	□	□	□	■	■	■	■	■	■	■	■	■	■	■	■	■	■	▥	■	■	□	□	□	□	□
1995	JUN 30	□	□	□	□	□	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■		■	□	□	□	□
1996	JUL 27	□	□	□	□	□	□	□	□	□	▥	■	■	■	■	■	■	■	■	■	■	■	■	■	□	□	□	□
1997	AUG 23	□	□	□	□	□	□	□	▥	▥	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	□
1998	SEP 19	□	□	□	□	□	□	□	□	□	□	□	□	■	■	■	■	■	■	■	■				■	■	■	
1999	OCT 16	■	□	□	□	□	□	□	□	□	□	□	□	□	■	■	■	■			■	■	■	■	■	■	□	□
2000	NOV 12	□	□	□	□		□	□	□	□	□		□		□	□	□	□	□	□	□	■	■	■	■	▥	□	□
2001	DEC 9	□	□	□	□	□	□	□	□	□			□	□	■			□	□	□	□	■			■	■	▥	
2002	1980 JAN 5			□	□										■	■	□	□	□	□	■	■	■		■	■	■	□
2003	FEB 1	□	□	□	□	□	□	□	□	□	▥	□	□	□					□	■	□	■		■			□	□
2004	FEB 28	□	□			□	□	□	▥	▥	■		□	□	▥	■		▥	■	■	■	■	■	■	■	■	■	□
2005	MAR 26	□	□	□	□	□	□	■	■	■		■	■	□	□	□	□	□	▥	■	■	■	■	■	■	■		□
2006	APR 22	□	□	□	□	□	□	■	■	■	■	□	□	□	□	■	■	■		■								

POLARITY OF THE MEAN SOLAR MAGNETIC FIELD: □ = FIELD >2μT, ▥ = -2μT ≤FIELD ≤2μT, ■ = FIELD <-2μT

No box visible indicates no data available for that day.

Note: Data are taken daily at 2000 UT. Dates given are not Bartels Rotation dates. These earlier dates correspond to the occurrence of phenomena on the sun which affect the Earth during the given Bartels Rotation.

STANFORD MEAN SOLAR MAGNETIC FIELD (MICROTESLAS)

STANFORD MEAN SOLAR MAGNETIC FIELD (MICROTESLAS)

	1979								1980			
DAY	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	FEB.	MARCH	APRIL
01	26	41	97	24	-5	-32	-6	16	-37	94	.	-10
02	13	82	86	21	-8	-27	.	-3	-28	96	.	-26
03	6	137	70	6	-36	-27	.	-24	1	87	50	-21
04	10	115	35	4	-28	-36	-5	-18	.	72	53	.
05	45	104	-33	2	-20	-45	-8	-6	.	72	12	-44
06	68	78	-61	-6	-24	-31	-17	-1	.	57	-1	-17
07	101	15	-81	-8	-39	-22	-12	18	54	49	1	9
08	134	-27	-80	-8	-46	-45	-3	35	59	31	-8	4
09	126	-50	-70	-6	-54	.	-6	75	.	10	.	7
10	75	-76	-68	-16	-45	.	6	99	.	0	9	7
11	31	-82	-75	-43	-47	.	29	83	.	10	21	5
12	-13	-52	-23	-59	-67	-55	46	60	.	11	1	2
13	-66	-52	-23	-46	-74	-62	52	32	.	3	-7	-15
14	-104	-37	-20	-33	-53	-49	45	44	.	.	.	-18
15	.	-28	-24	-38	-41	.	26	29	.	.	-2	-12
16	.	-42	-30	-61	-26	-6	.	20	.	.	-10	-14
17	.	-43	-26	-57	-18	20	13	18	.	.	-9	-8
18	-27	-35	-32	-41	3	29	41	.	-17	5	-8	-10
19	-29	-32	-16	4	15	25	35	.	-8	-13	-18	-5
20	-36	-37	-10	.	41	52	35	7	33	3	-42	.
21	-34	-24	.	41	46	64	30	6	32	-7	-41	30
22	-43	0	-16	55	64	69	.	-6	10	.	-39	95
23	-56	-7	6	58	59	48	22	.	3	-32	-24	113
24	-51	-7	33	68	65	50	.	.	-12	.	-20	113
25	-30	10	58	74	63	35	12	35	-25	.	13	100
26	-16	17	69	77	40	26	20	40	-31	6	43	56
27	-17	29	83	47	37	16	27	27	.	43	53	8
8	-4	47	92	40	24	3	24	23	-34	58	64	-27
29	19	64	90	32	21	-9	39	-18	-26	57	84	-28
30	10	93	82	1	7	-7	37	.	-13		75	-16
31	9		53	-1		-22		.	29		25	

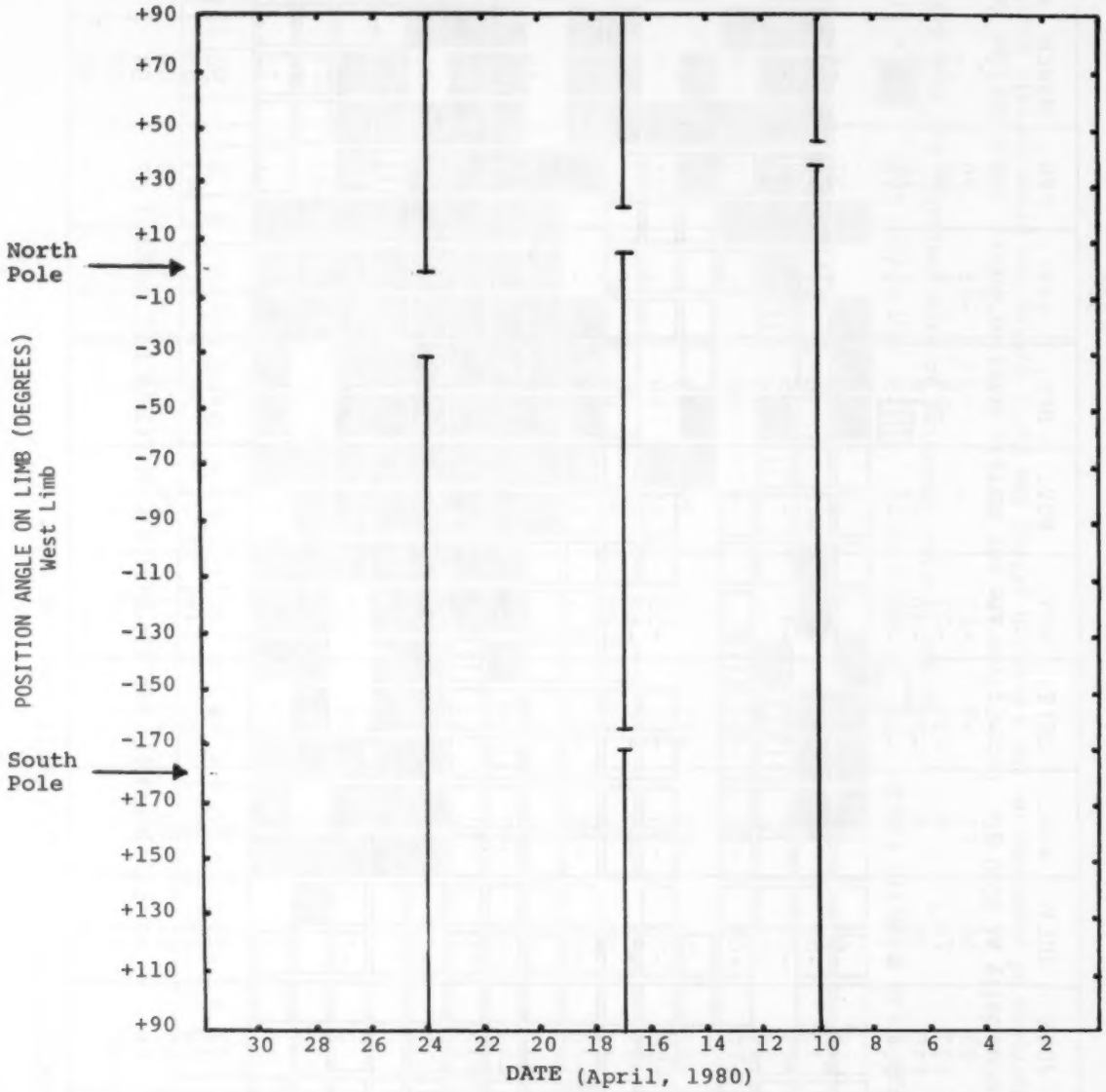
DOT SYMBOL INDICATES NO DATA AVAILABLE FOR THE DAY.

CORONAL HOLES

Helium D3 Chromosphere at Solar Limb

APRIL 1980

Big Bear Solar Observatory



BOULDER GEOMAGNETIC SUBSTORM LOG

APRIL 1980

DATE	ONSET TIME	DIR	COMMENTS
04/01	1330		Slow onset with final recovery not until 2000 UT.
04/02			Weak positive impulse H-component all mid/low latitude stations. Otherwise quiet day.
04/03			Field intermittently unsettled with no distinctive SS activity.
04/04	0735	≈ center	Field remained unsettled through 2030 UT.
04/05	1530		Slow onset, several injections with recovery near 1900 UT. Response strongest at Alaskan Polar Cap stations.
04/06	1058	SSC	Short-lived magstorm with recovery near 1800 UT. Field remained unsettled balance of day.
04/07	0430	East	Weak SS
	0710	East	
	1325		SS response along Auroral Oval only. Field became active after 1700 UT with no distinctive SS activity.
04/08			Field remained active through 1600 UT.
	1000	West	
	1200	West	
	2330		Positive impulse H-component all mid/low latitude stations.
04/09	0500	East	Weak SS
	0950		Strong SS from Ft. Simpson eastward. Numerous injections.
	1220	West	Moderate SS. Final recovery from these two SS near 1430 UT.
	1530		Weak SS
04/10			Field very active 0230-1230 UT. SS activity quite variable throughout network.
	0955	West	Moderate SS
	2245		Slow rise positive impulse H-component all mid/low latitude stations.
04/11			Field very active after 0630 UT.
	0640	East	
	0910	West	
	1910		
04/12			Field active all day.
	0125	East	
	0455	East	SS had several injections.
	0910	West	SS had several injections.
	1215	West	
	1655		SS response mainly at Alaskan Polar Cap stations.
04/13			Field active through 1200 UT and unsettled balance of day.
	0650	≈ center	Weak SS with several injections.
04/14	0335	East	Weak SS. Field intermittently unsettled balance of the day with no distinctive SS activity.
04/15			Field active from 0000-0830 UT and again from 1430-2400 UT.
	0600	East then ≈ center	Several injections with recovery at 0820 UT.
	1440	West	Slow onset, minor injections maintain SS through 2000 UT EWCS remained over Ft. Yukon entire period.
04/16	0455	East	Several injections with recovery near 0800 UT.
	1120	West	Weak SS
04/17			Field unsettled through 0800 UT.
04/18	0835		Weak SS confined to Auroral Oval.
04/19			Field unsettled 0600-1300 UT with no distinctive SS activity.
04/20	1215		Weak SS from College to Arctic Village to Ft. Simpson only. Polar Cap and mid/low latitude stations unsettled after 1800 UT.
04/21			Field intermittently slightly unsettled with no SS activity.
04/22	0035		Positive impulse H-component all mid/low latitude stations. Field intermittently unsettled through 2000 UT with no distinctive SS activity.
04/23			Field intermittently slightly unsettled with no SS activity.
04/24			Field intermittently unsettled with no distinctive SS activity.
04/25			Field unsettled through 1600 UT.
	1045	West	Moderate SS
04/26			Field intermittently unsettled
	1400		Weak SS
04/27			Field intermittently unsettled with no distinctive SS activity.
04/28			Field intermittently unsettled with no distinctive SS activity.
04/29			Field unsettled all day.
	0545	East	Weak SS
04/30			Field strongly unsettled after 1000 UT with no distinctive SS activity.

SGD 429 Part I (Prompt)

MARCH 1980 DATA

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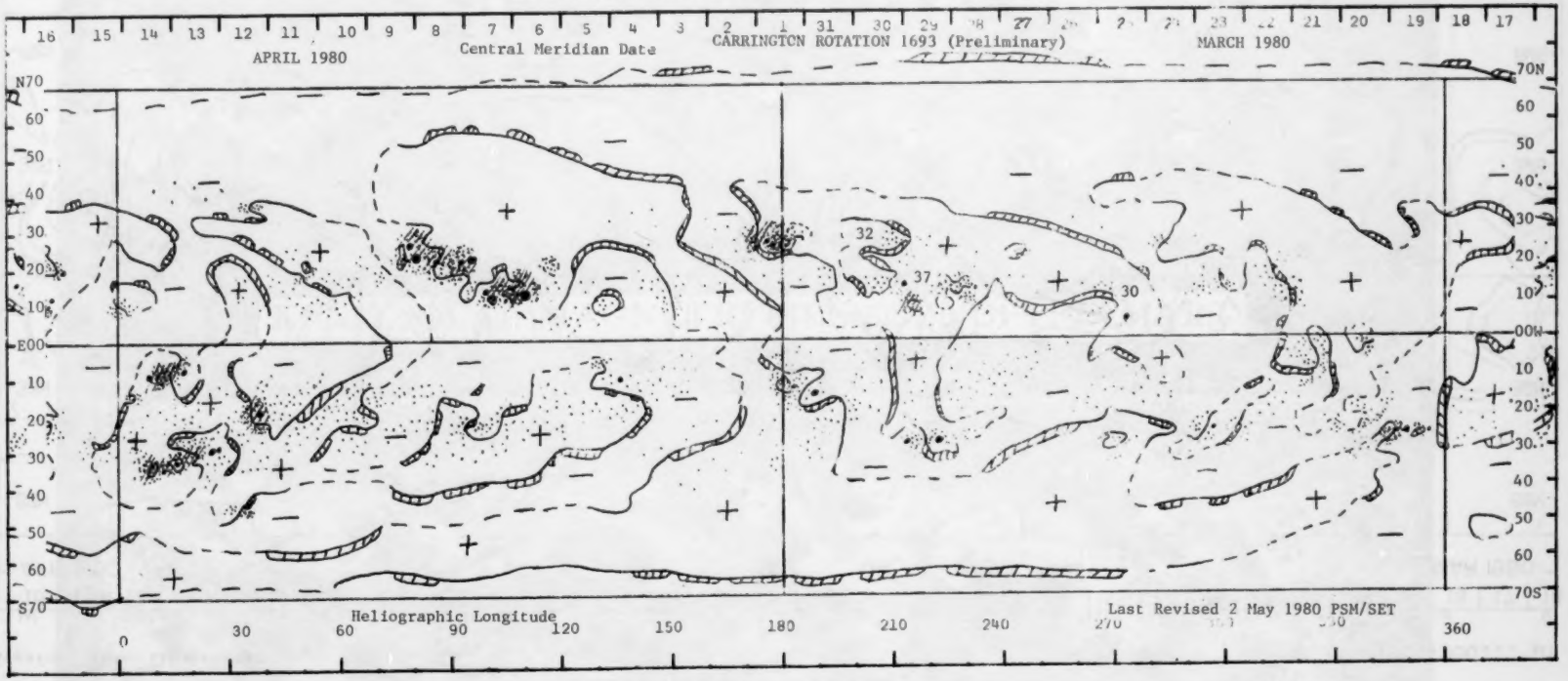
Hα SYNOPTIC CHART

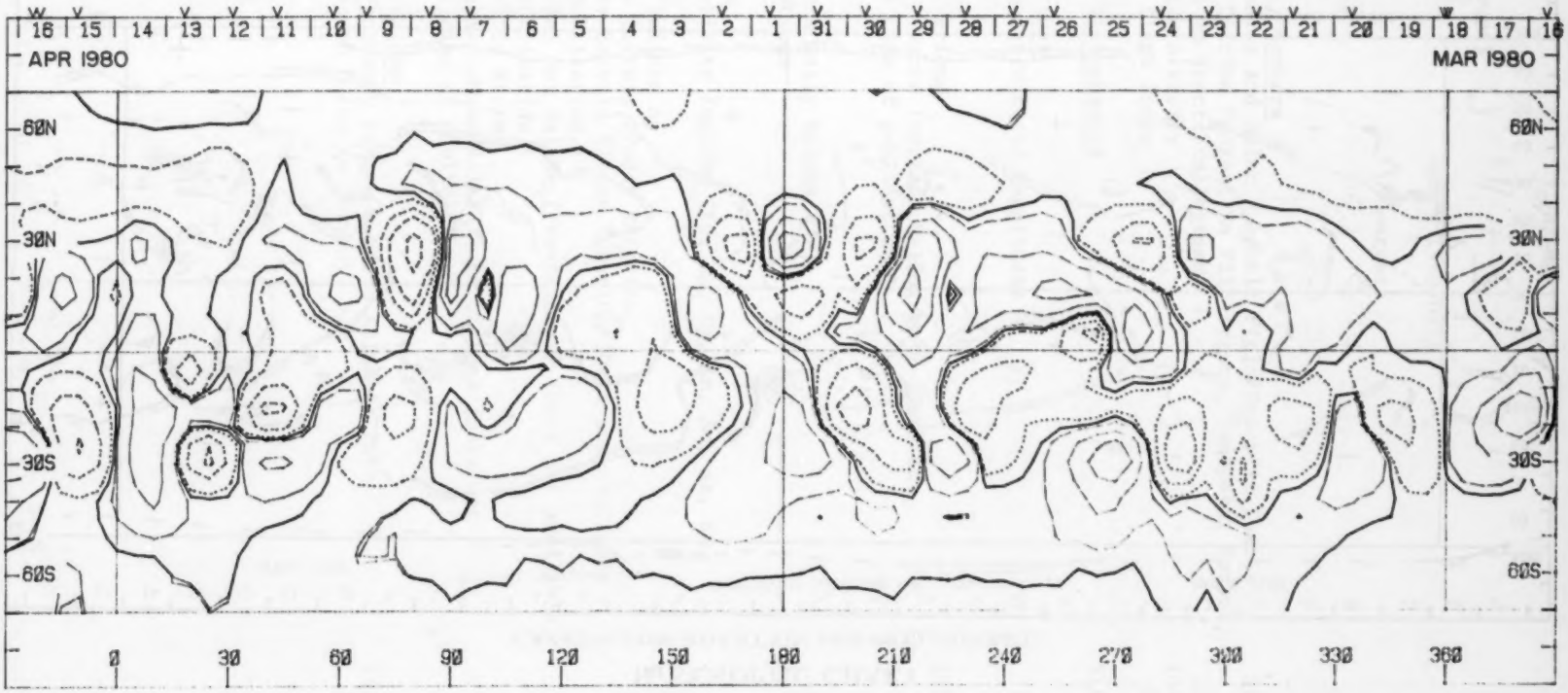
CARRINGTON ROTATION 1693 (PRELIMINARY)

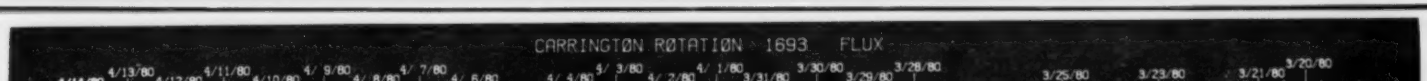


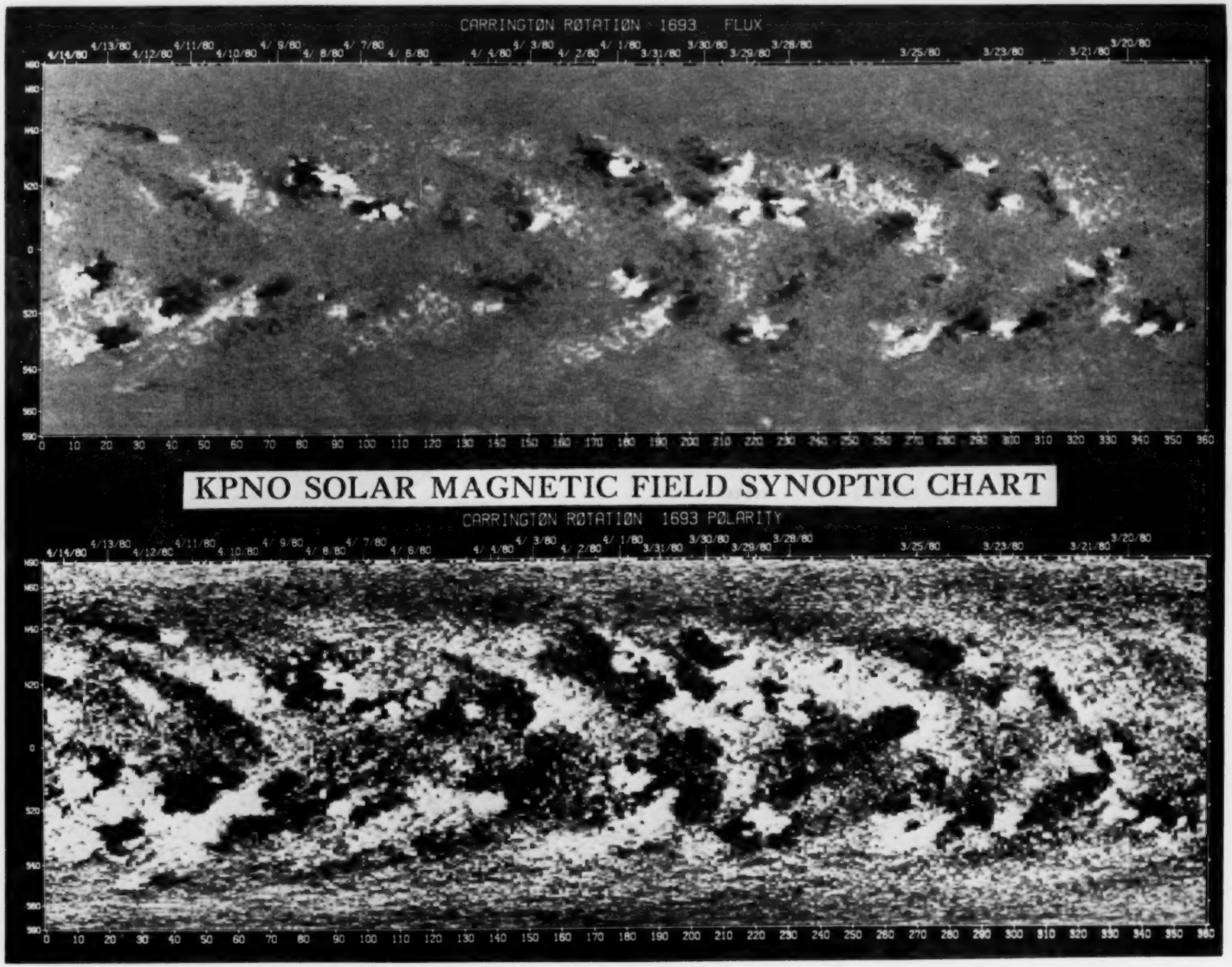
SOLAR MAGNETIC FIELD SYNOPTIC CHART
CARRINGTON ROTATION 1693

Stanford Solar Observatory

0.±100.200.500... μT



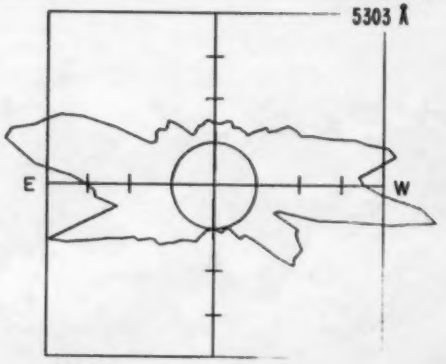




KPNO SOLAR MAGNETIC FIELD SYNOPTIC CHART

MARCH 1, 1980 (P=-21.61, B_o=-7.22, L_o=235.10)

SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å

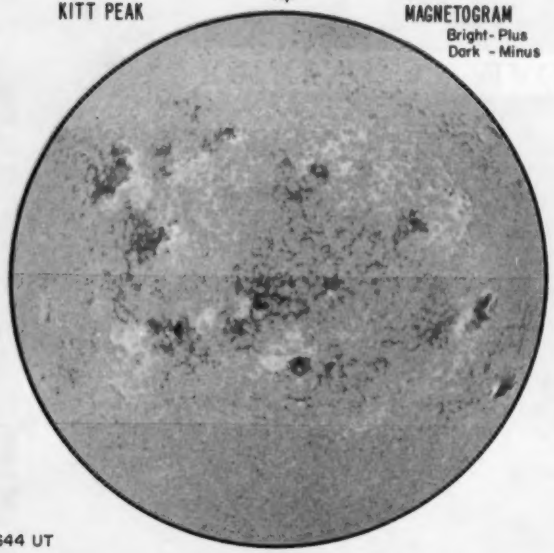


1640 UT

Sp

Np

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus



1644 UT

Sp

MT. WILSON

MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY =
DELTAX =

E NO DATA 1-3 MARCH W

Levels
± 5
± ± 10
± ± ± 20
± ± ± ± 40
± ± ± ± ± 80

Sp

OI

SACRAMENTO PEAK Np

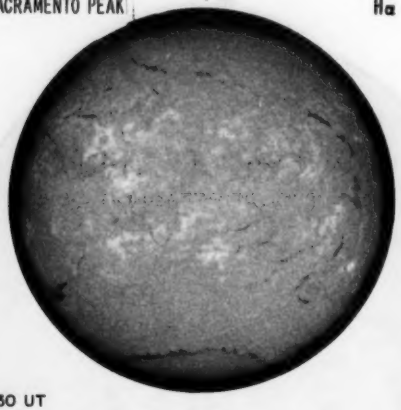
Hα SAN FERNANDO Np

SUNSPOTS HALE OBSERVATORIES Np

CALCIUM REPORT

OI

SACRAMENTO PEAK Np Hα

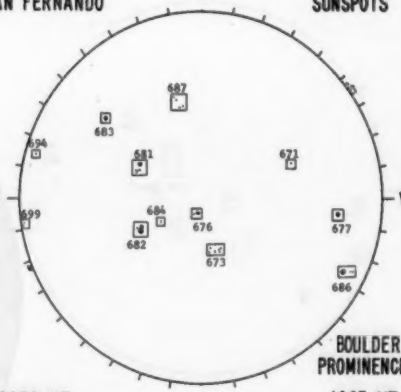


E W

1930 UT

Sp

SAN FERNANDO Np



E W E

2000 UT

Sp

SUNSPOTS HALE OBSERVATORIES Np

BOULDER PROMINENCES

1445 UT

Sp

CALCIUM REPORT

NO DATA MARCH 1-3

W

Sp

NOSC LA POSTA Np 2.0 CM

NO DATA

E SCHEDULE W

---- UT Sp Ant. Temp. Unit 100° K

NOSC LA POSTA Np 8.6 MM

NO DATA

E SCHEDULE W

---- UT Sp Ant. Temp. Unit 100° K

STANFORD Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus

NO DATA 1-6 MARCH

E W

Levels

0 μT

± 50

±100

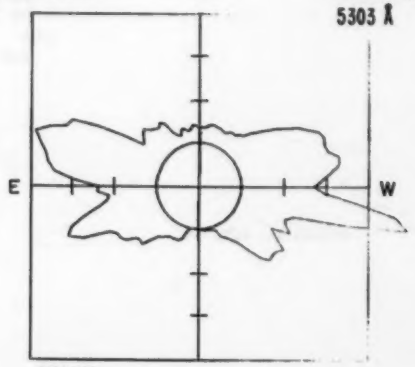
±200

Sp

MARCH 2, 1980 (P=-21.86, B_o=-7.23, L_o=221.93)

SACRAMENTO PEAK Np

CORONA (1.15 $R_\odot$)
5303 Å

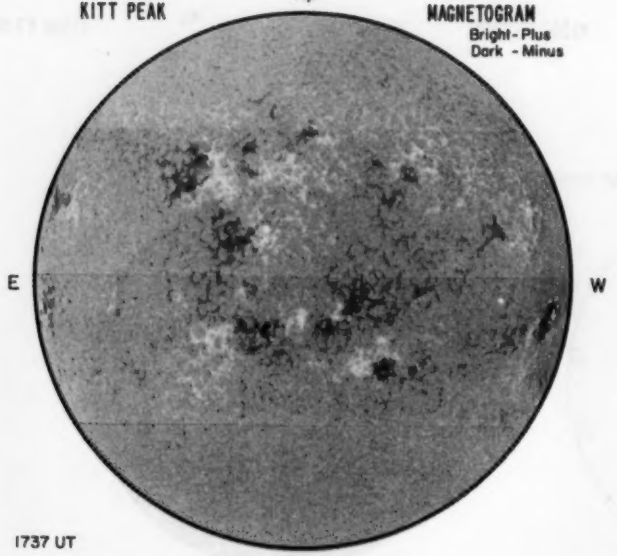


Sp

Np

KITT PEAK Np

MAGNETOGRAM
Bright - Plus
Dark - Minus



Sp

MT. WILSON

DELTAY =
DELTAX =

MAGNETOGRAM
Solid-Plus
Dotted-Minus

E W

Levels
± 5
± 10
± 20
± 40
± 80

Sp

02

SACRAMENTO PEAK Np

BOULDER Np

SUNSPOTS HALE OBSERVATORIES Np

CALCIUM REPORT

Sp

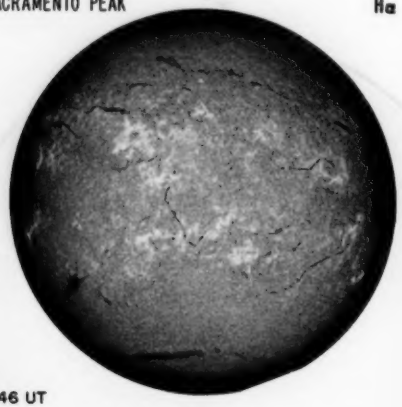
Sp

02

SACRAMENTO PEAK

Np

Hα



E W

1546 UT

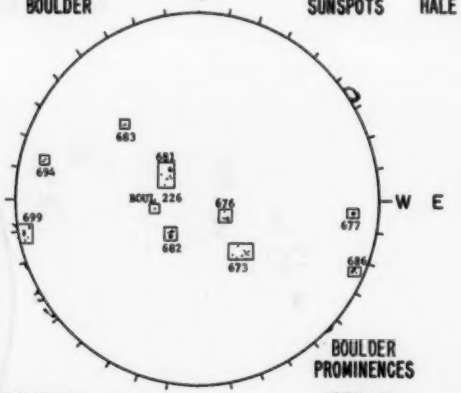
Sp

BOULDER

Np

SUNSPOTS

HALE OBSERVATORIES



E W E W E

BOULDER PROMINENCES

1510 UT

Sp

1533 UT

Sp

Np

CALCIUM REPORT

W

Sp

NOSC LA POSTA

Np

2.0 CM

NO DATA

E

SCHEDULE

W E W

---- UT

Sp

Ant. Temp. Unit 100° K

NOSC LA POSTA

Np

8.6 MM

NO DATA

SCHEDULE

---- UT

Sp

Ant. Temp. Unit 100° K

STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus

Levels

0 μT

± 50

±100

±200

W

Sp

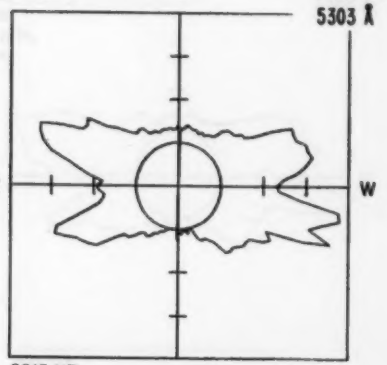
45

Mar 80

MARCH 3, 1980 (P=-22.10, B_o=-7.24, L_o=208.76)

SACRAMENTO PEAK Np

CORONA (1.15 $R_\odot$)
5303 Å



Sp

Np

KITT PEAK Np

MAGNETOGRAM
Bright - Plus
Dark - Minus

NO DATA

E W

Sp

MT. WILSON

DELTAY =
DELTAX =

MAGNETOGRAM
Solid-Plus
Dotted-Minus

E W

Sp

Levels
± 5
± 10
± 20
± 40
± 80

03

SACRAMENTO PEAK Np

Hα

SAN FERNANDO Np

SUNSPOTS HALE OBSERVATORIES Np

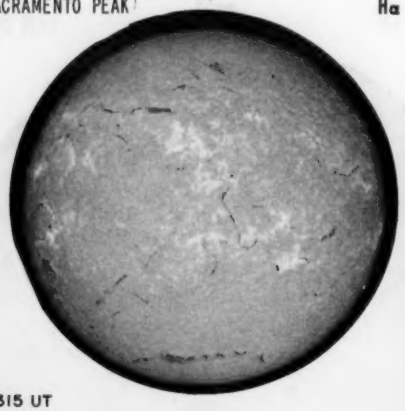
CALCIUM REPORT

03

SACRAMENTO PEAK

Np

Hα



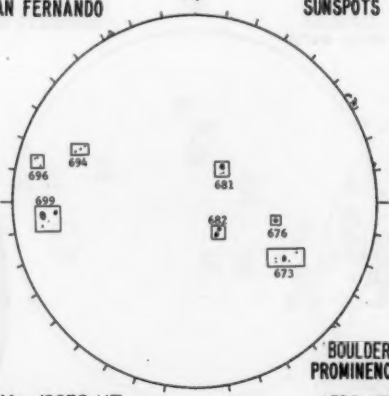
E W

2315 UT

Sp

SAN FERNANDO

Np



E W E

04 Mar./0030 UT

Sp

SUNSPOTS

HALE OBSERVATORIES

Np

BOULDER PROMINENCES

1735 UT

Sp

CALCIUM REPORT

Np

E W

Sp

NOSC LA POSTA

Np

2.0 CM

NO DATA

E W

WEATHER

---- UT

Sp

Ant. Temp. Unit 100° K

NOSC LA POSTA

Np

8.6 MM

NO DATA

E W

WEATHER

---- UT

Sp

Ant. Temp. Unit 100° K

STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus

E W

Levels

0 μT

± 50

±100

±200

Sp

47

Mar 80

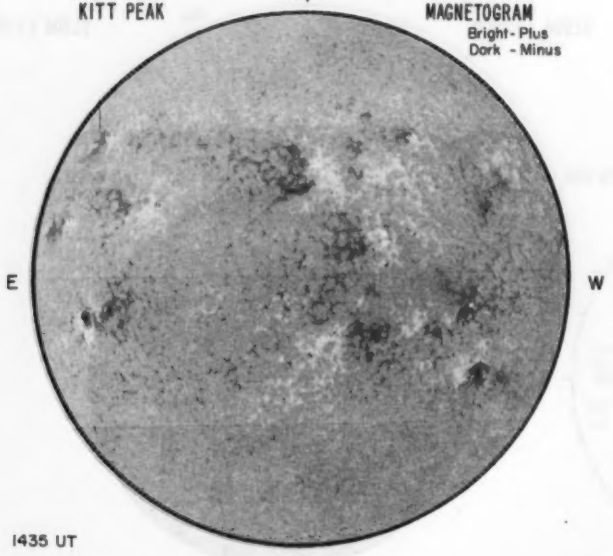
MARCH 4, 1980 (P=-22.34, B_o=-7.25, L_o=195.58)

SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å

E NO DATA W

Sp

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus

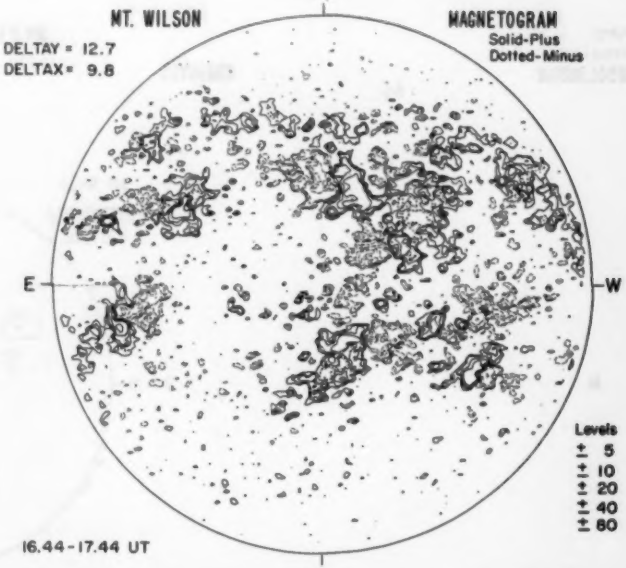


E W

1435 UT

Sp

MT. WILSON Np MAGNETOGRAM
DELTAY = 12.7 Solid-Plus
DELTAX = 9.8 Dotted-Minus



E W

Levels
± 5
± 10
± 20
± 40
± 80

16.44-17.44 UT

Sp

04

Np

Np

Np

Sp

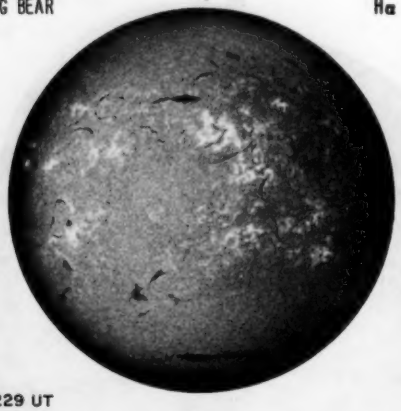
Sp

04

BIG BEAR

Np

Hα



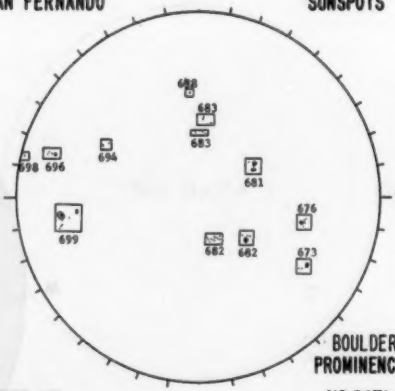
E W

2229 UT

Sp

SAN FERNANDO

Np



E W

1730 UT

Sp

SUNSPOTS

BOULDER PROMINENCES

NO DATA

HALE OBSERVATORIES

Np

E W

1653 UT

Sp

CALCIUM REPORT

	GOOD	JA
71-	0400	2.5
73-	2100	3.5
76-	1700	3.0
80-	2100	3.0
81-	2500	3.0
82-	3400	3.5
83-	4500	4.0
84-	0800	3.5
87-	0500	3.5
88-	0600	2.5
89-	0200	2.5
90-	0100	2.5
91-	0100	2.5
92-	0300	2.5
93-	0100	2.5
94-	2200	3.5
95-	1200	3.5
96-	0600	4.0
97-	0300	3.0
98-	0400	3.5
99-	2500	3.0

Np

STANFORD

MAGNETOGRAM

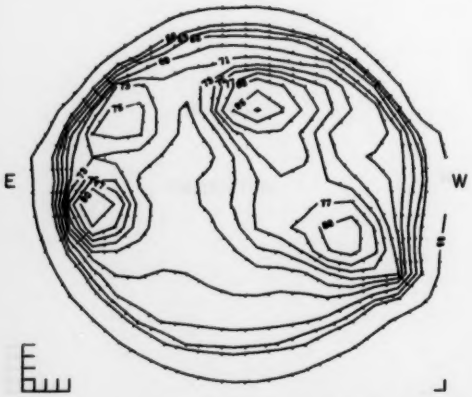
Solid - Plus; zero level

Dashed - Minus

NOSC LA POSTA

Np

2.0 CM



E W

1757 UT

Sp

Ant. Temp. Unit 100° K

NOSC LA POSTA

Np

8.6 MM

NO DATA

CLOUDY

E W

1824 UT

Sp

Ant. Temp. Unit 100° K

Levels

0 μT

± 50

±100

±200

Sp

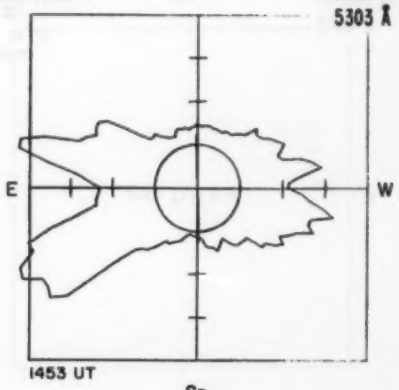
W

49

Mar 80

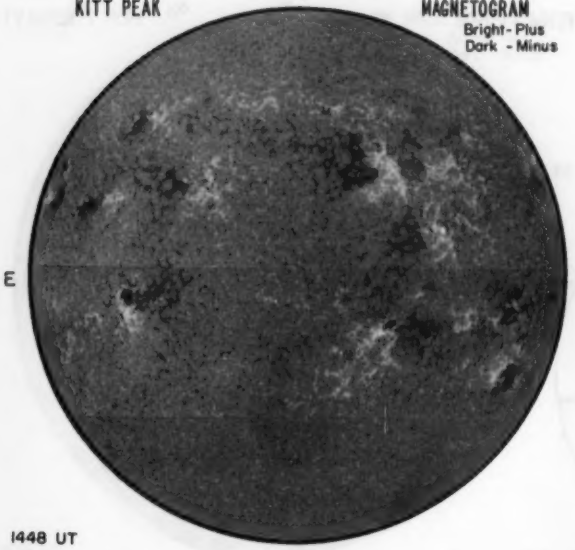
MARCH 5, 1980 (P = -22.57, B_o = -7.25, L_o = 182.41)

SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å



Np

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus



MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus
DELTAY =
DELTAX =

NO DATA 5-7 MARCH

E W Sp

Levels
± 5
± 10
± 20
± 40
± 80

05

SACRAMENTO PEAK Np

H_α

SAN FERNANDO Np

SUNSPOTS

HALE OBSERVATORIES Np

CALCIUM REPORT

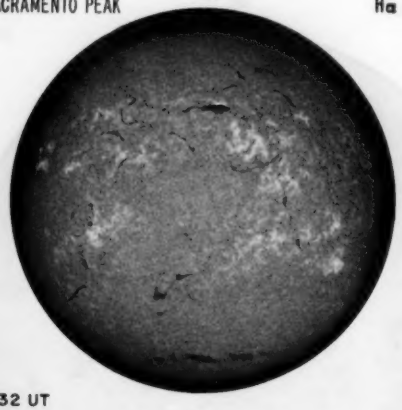
Sp

Sp

05

SACRAMENTO PEAK

Np



E W

1432 UT

Sp

Hα

SAN FERNANDO

Np

NO DATA

E W

Sp

SUNSPOTS

HALE OBSERVATORIES

Np

NO DATA MARCH 5-7

E W

Sp

CALCIUM REPORT

BOULDER PROMINENCES

NOSC LA POSTA

Np

2.0 CM

NO DATA

CALIBRATION

E W

1602 UT

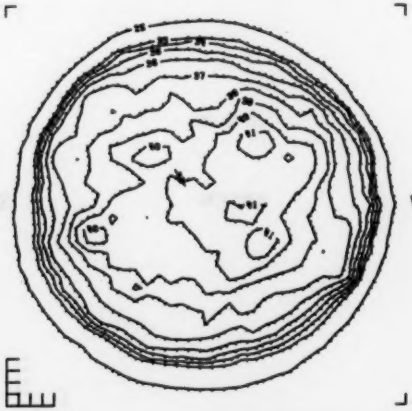
Sp

Ant. Temp. Unit 100° K

NOSC LA POSTA

Np

8.6 MM



E W

1629 UT

Sp

Ant. Temp. Unit 100° K

STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus

E W

Levels

0 μT

± 50

±100

±200

Sp

51

Mar 80

MARCH 6, 1980 (P=-22.79, B_o=-7.25, L_o=169.23)

SACRAMENTO PEAK

Np

CORONA (1.15 $R_\odot$)
5303 Å

E — NO DATA — W

Sp

Np

KITT PEAK

Np

MAGNETOGRAM
Bright - Plus
Dark - Minus

E W

1445 UT

Sp

MT. WILSON

DELTAY =
DELTAX =

MAGNETOGRAM
Solid-Plus
Dotted-Minus

E W

Levels
± 5
± ± 10
± ± ± 20
± ± ± ± 40
± ± ± ± ± 80

Sp

06

BIG BEAR

Np

Hα

SAN FERNANDO

Np

SUNSPOTS

HALE OBSERVATORIES

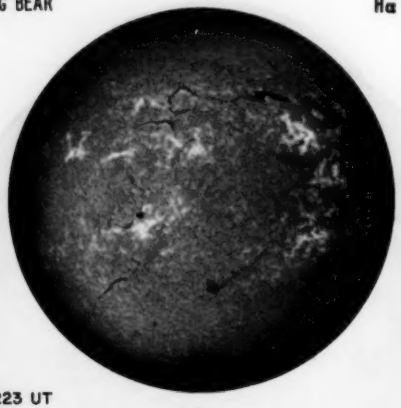
Np

CALCIUM REPORT

Sp Sp

06

BIG BEAR Np Hα

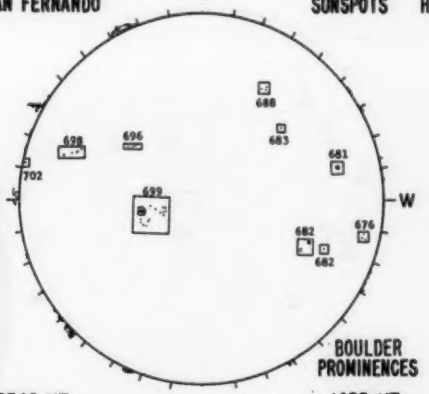


E W

2223 UT

Sp

SAN FERNANDO Np



E W E

2340 UT

Sp

SUNSPOTS HALE OBSERVATORIES Np

BOULDER PROMINENCES

1429 UT

Sp

CALCIUM REPORT

E W

Sp

NOSC LA POSTA Np 2.0 CM

NO DATA

E WEATHER W

---- UT Sp Ant. Temp. Unit 100° K

NOSC LA POSTA Np 8.6 MM

NO DATA

E WEATHER W

---- UT Sp Ant. Temp. Unit 100° K

STANFORD Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus

Levels

0 μT

± 50

±100

±200

E W

Sp

53

Mar 80

MARCH 7, 1980 (P=-23.00, B_o=-7.25, L_o=156.06)

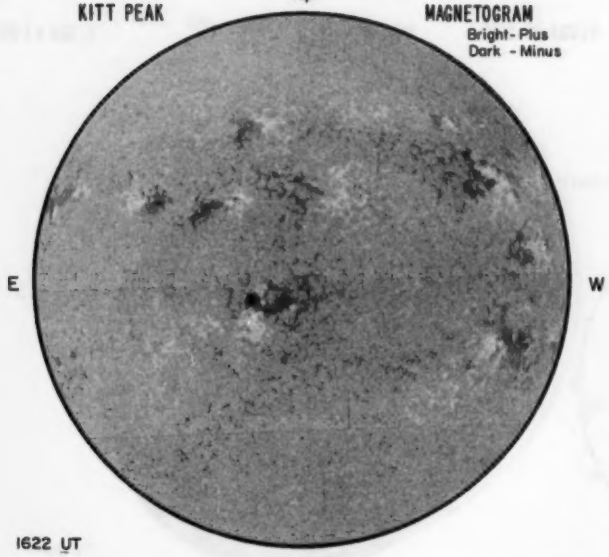
SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å

E NO DATA W

Sp

Np

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus



E W

1622 UT

Sp

MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY =
DELTAX =

E W

Levels
5
10
20
40
80

Sp

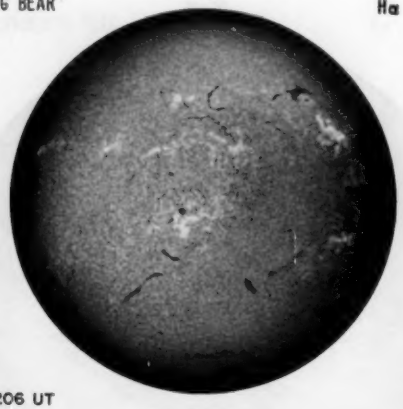
07

BIG BEAR Np Hα SAN FERNANDO Np SUNSPOTS HALE OBSERVATORIES Np CALCIUM REPORT

07

BIG BEAR

Np



E W

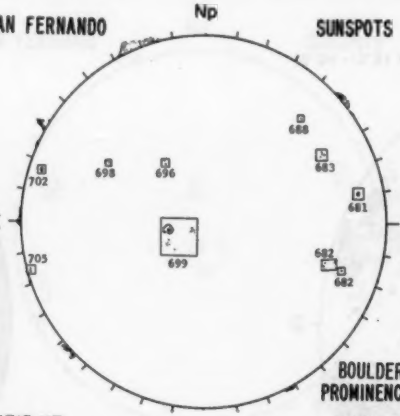
2206 UT

Sp

Hα

SAN FERNANDO

Np



E W E

1715 UT

Sp

SUNSPOTS

HALE OBSERVATORIES

BOULDER PROMINENCES

2000 UT

Np

E W

Sp

CALCIUM REPORT

NOSC LA POSTA

Np

2.0 CM

NO DATA

E W

WEATHER

---- UT

Sp

Ant. Temp. Unit 100° K

NOSC LA POSTA

Np

8.6 MM

NO DATA

E W

WEATHER

---- UT

Sp

Ant. Temp. Unit 100° K

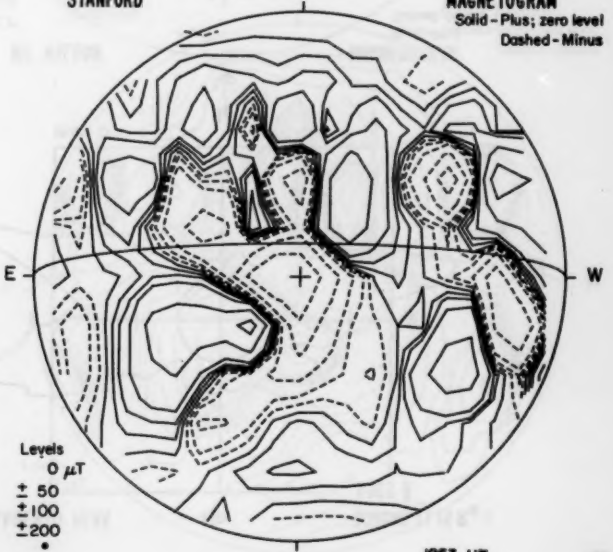
STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



E W

Levels

0 μT

± 50

±100

±200

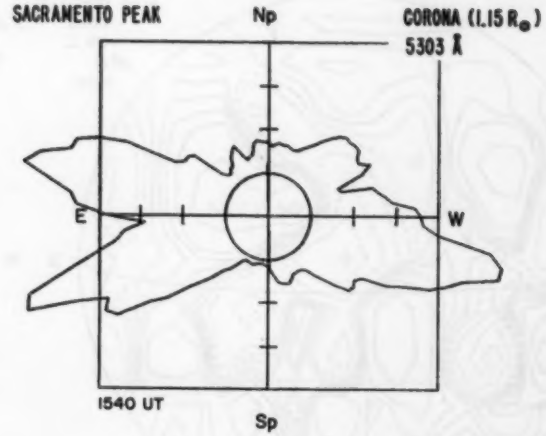
1953 UT

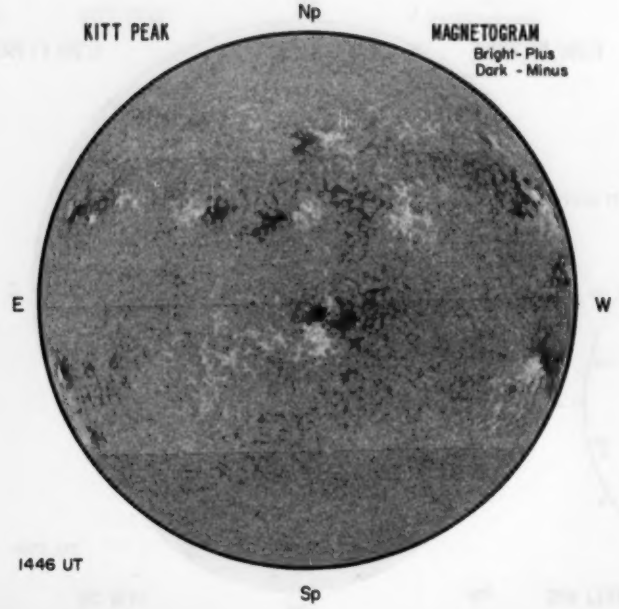
Sp

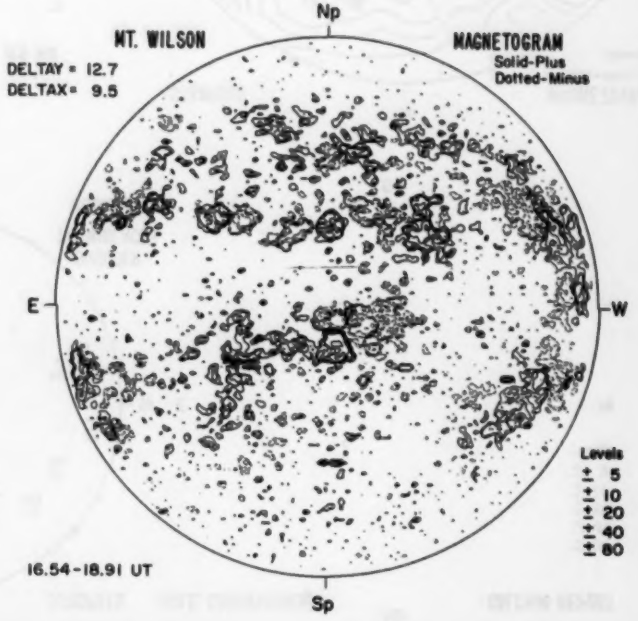
55

Mar 80

MARCH 8, 1980 (P=-23.21, B_0=-7.25, L_0=142.88)





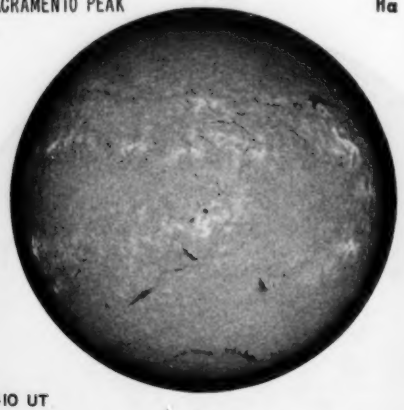


Sp

Sp

08

SACRAMENTO PEAK Np Hα

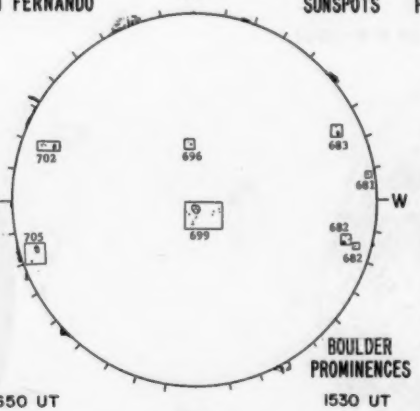


E W

1410 UT

Sp

SAN FERNANDO Np SUNSPOTS



E W

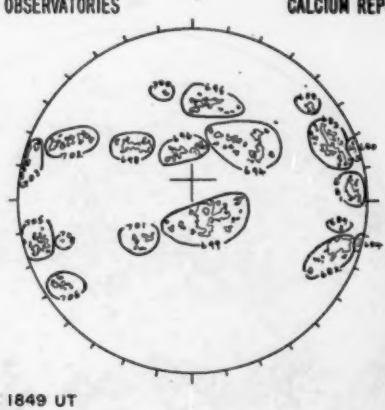
1650 UT

Sp

BOULDER PROMINENCES

1530 UT

HALE OBSERVATORIES Np CALCIUM REPORT



E W

1849 UT

Sp

	FAIR	JA
81-	1300-	2.5
82-	2300-	3.0
83-	2300-	3.5
88-	0400-	2.5
94-	1900-	3.5
95-	1000-	3.0
96-	0900-	3.5
98-	1100-	3.5
99-	2700-	4.0
01-	0500-	3.0
02-	1200-	3.5
03-	0900-	2.5
05-	1300-	3.0
06-	0500-	3.5
08-	0100-	2.5

NOSC LA POSTA Np 2.0 CM

NO DATA

E SCHEDULE W

---- UT Sp Ant. Temp. Unit 100° K

NOSC LA POSTA Np 8.6 MM

NO DATA

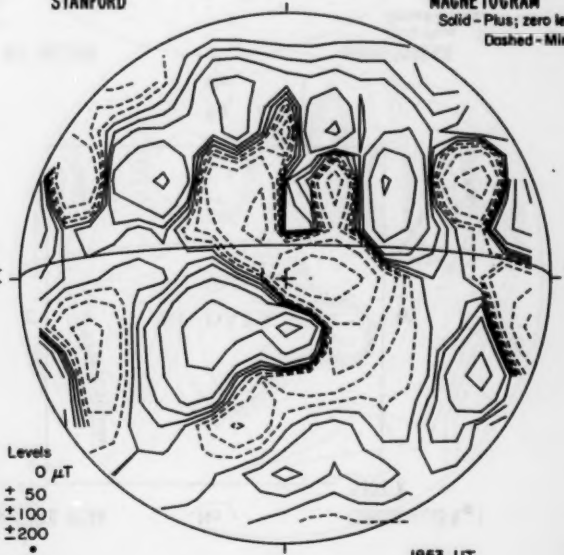
E SCHEDULE W

---- UT Sp Ant. Temp. Unit 100° K

STANFORD Np MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



E W

Levels

0 μT

± 50

±100

±200

•

•

•

1853 UT

Sp

57

Mar 80

MARCH 9, 1980 (P=-23.42, B_o=-7.24, L_o=129.70)

SACRAMENTO PEAK

Np

CORONA (1.15 $R_\odot$)
5303 Å

E

NO DATA

W

Sp

KITT PEAK

Np

MAGNETOGRAM
Bright - Plus
Dark - Minus

E

W

1522 UT

Sp

MT. WILSON

Np

MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY = 12.7
DELTAX = 9.5

E

W

Levels
± 5
± 10
± 20
± 40
± 60

17.67-19.12 UT

Sp

09

Np

SUNSPOTS

HALE OBSERVATORIES

Np

CALCIUM REPORT

Sp

Sp

09

SACRAMENTO PEAK

Np

Hα

E W

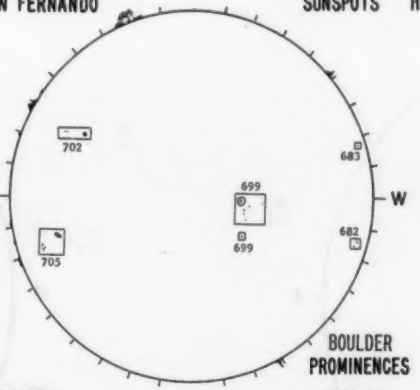
1457 UT

Sp

SAN FERNANDO

Np

SUNSPOTS



E W

BOULDER PROMINENCES

1735 UT

1614 UT

Sp

HALE OBSERVATORIES

Np

CALCIUM REPORT

E W

1803 UT

Sp

	FAIR	JA
81-	0200	2.5
82-	1400	3.0
83-	1000	3.0
94-	1400	3.0
95-	0700	3.5
96-	0800	3.5
98-	0900	3.0
99-	2600	3.5
01-	0400	3.0
02-	1100	3.0
03-	1600	3.5
04-	0100	2.5
05-	1200	3.0
06-	0600	3.5
07-	0900	3.0

NOSC LA POSTA

Np

2.0 CM

NO DATA

E SCHEDULE W

---- UT

Sp

Ant. Temp. Unit 100° K

NOSC LA POSTA

Np

8.6 MM

NO DATA

E SCHEDULE W

---- UT

Sp

Ant. Temp. Unit 100° K

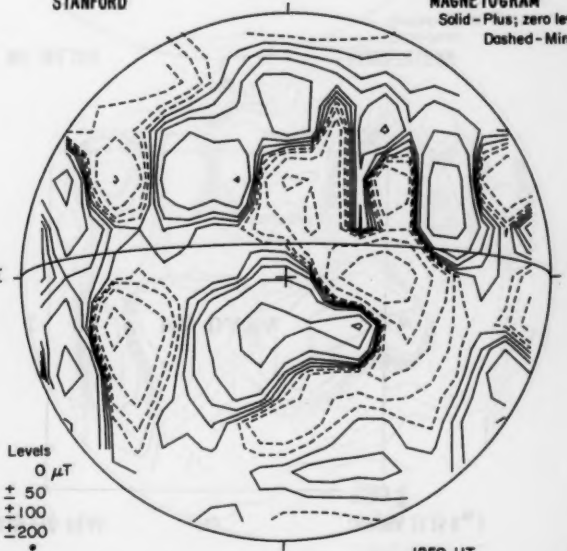
STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



Levels

0 μT

± 50

±100

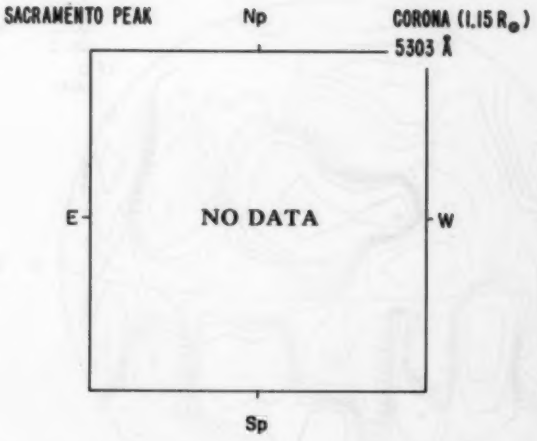
±200

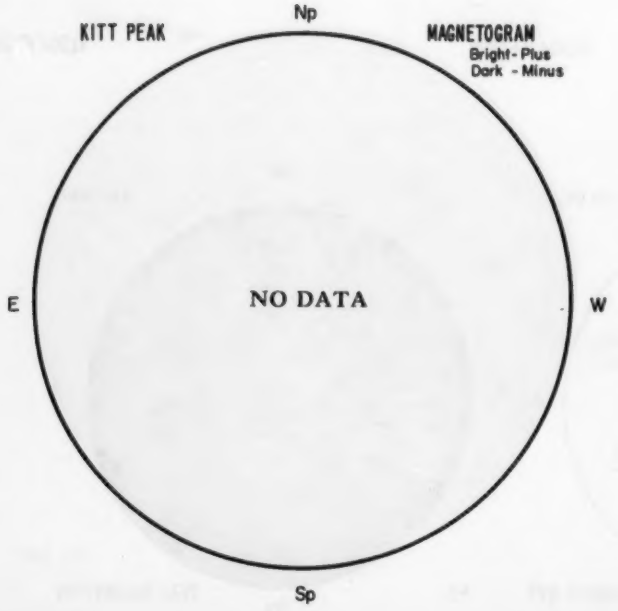
E W

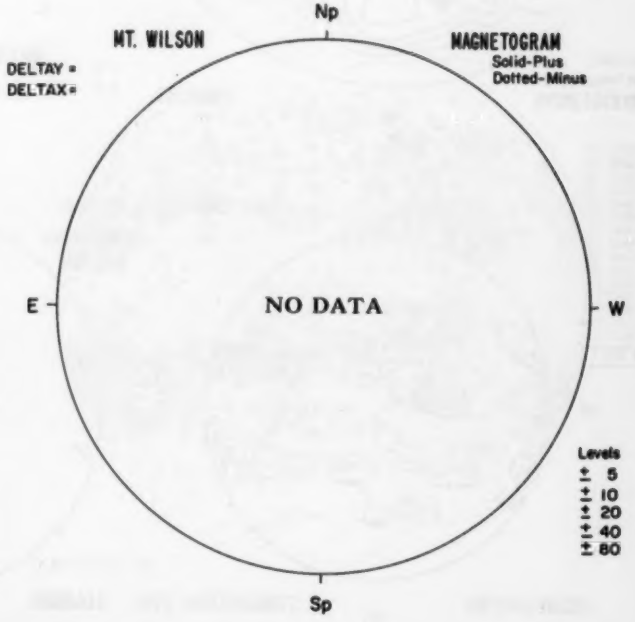
1859 UT

Sp

MARCH 10, 1980 (P = -23.61, B_o = -7.23, L_o = 116.53)





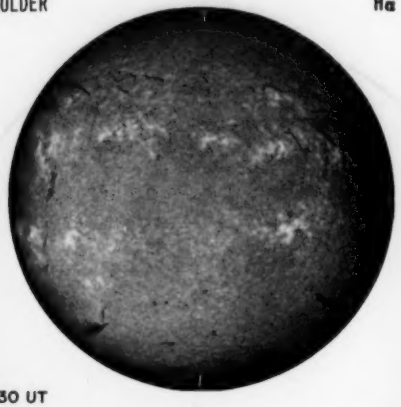


Sp

Sp

IO

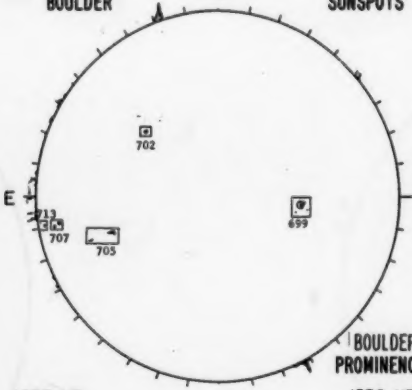
BOULDER Np Hα



E W

1530 UT Sp

BOULDER Np SUNSPOTS



E W

1450 UT Sp

BOULDER PROMINENCES

1530 UT

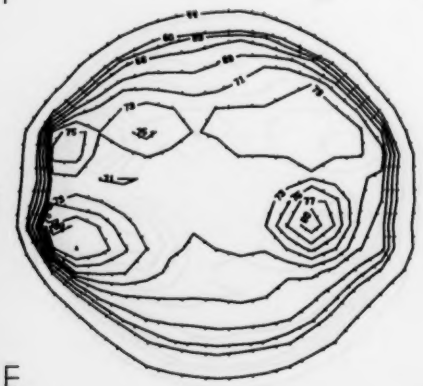
HALE OBSERVATORIES Np CALCIUM REPORT

NO DATA

E W

Sp

NOSC LA POSTA Np 2.0 CM



E W

1558 UT Sp Ant. Temp. Unit 100° K

NOSC LA POSTA Np 8.6 MM

NO DATA

EQUIPMENT

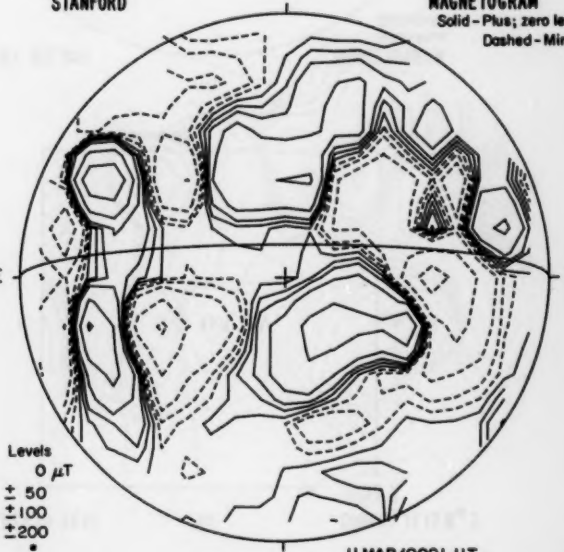
E W

---- UT Sp Ant. Temp. Unit 100° K

STANFORD Np MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



E W

Levels

0 μT

± 50

±100

±200

11MAR/0001 UT

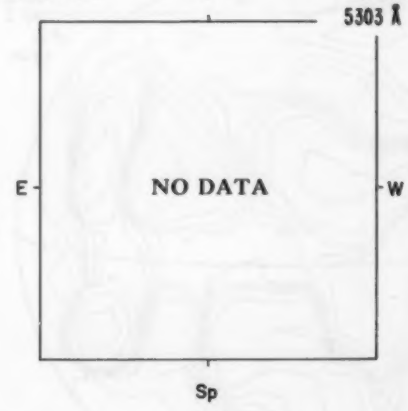
Sp

61

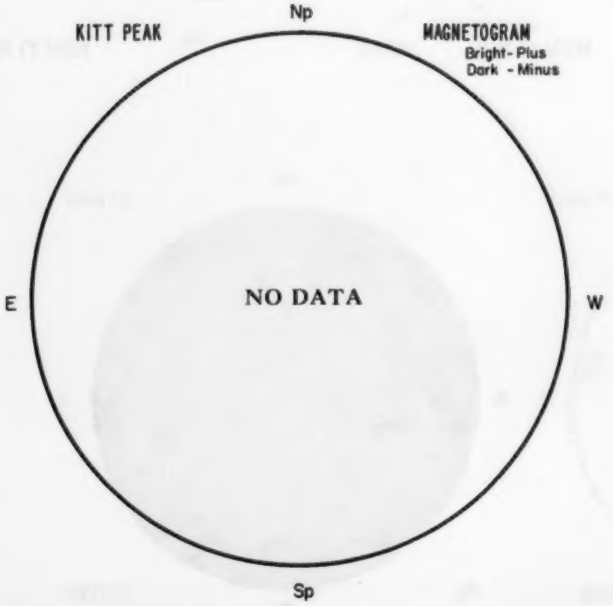
Mar 80

MARCH 11, 1980 (P=-23.80, B_o=-7.22, L_o=103.35)

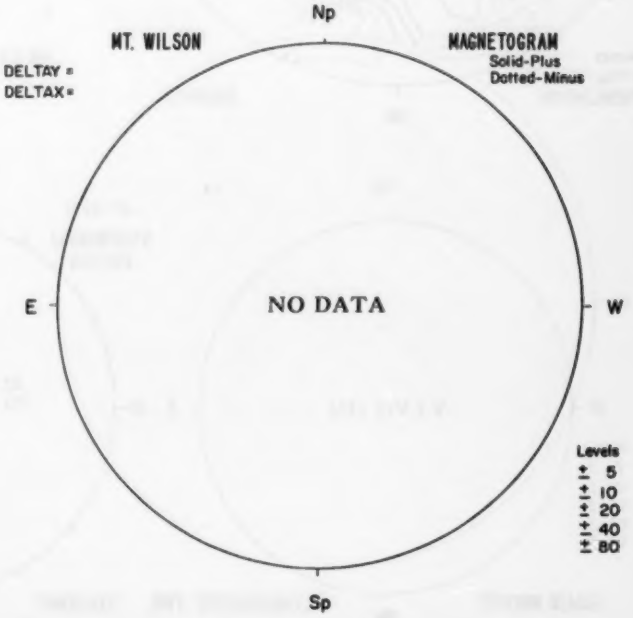
SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å



KITT PEAK Np MAGNETOGRAM
Bright-Plus
Dark - Minus



MT. WILSON Np MAGNETOGRAM
Solid-Plus
Dotted-Minus
DELTAY =
DELTAX =



BIG BEAR Np Hα SAN FERNANDO Np SUNSPOTS HALE OBSERVATORIES Np CALCIUM REPORT

Sp

Sp

11

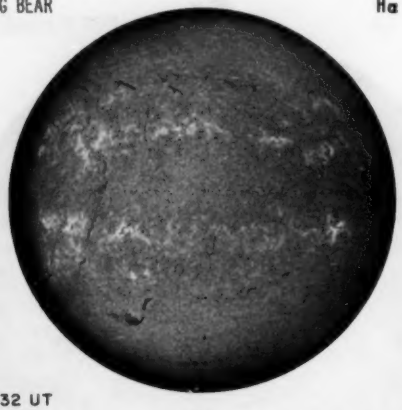
BIG BEAR

Np

Hα

E

W



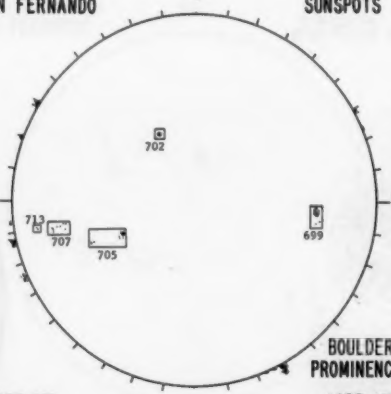
2132 UT

Sp

SAN FERNANDO

Np

SUNSPOTS



1650 UT

Sp

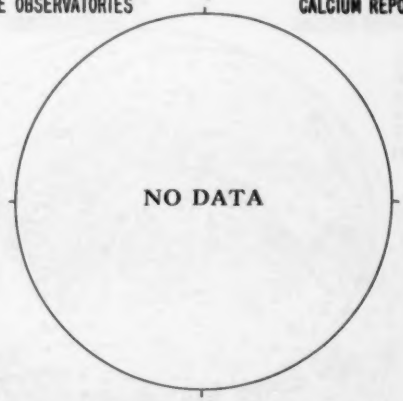
BOULDER PROMINENCES

1455 UT

HALE OBSERVATORIES

Np

CALCIUM REPORT



Sp

NOSC LA POSTA

Np

2.0 CM

1911 UT

Sp

Ant. Temp. Unit 100° K

NOSC LA POSTA

Np

8.6 MM

NO DATA

EQUIPMENT

E

W

---- UT

Sp

Ant. Temp. Unit 100° K

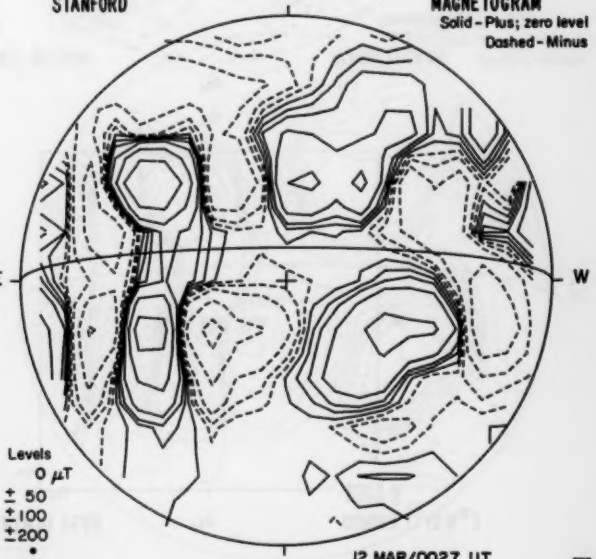
STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



12 MAR/0027 UT

Sp

63

Mar 80

MARCH 12, 1980 (P=-23.99, B_o=-7.21, L_o=90.17)

SACRAMENTO PEAK

Np

CORONA (1.15 $R_\odot$)
5303 Å

E

NO DATA

W

Sp

KITT PEAK

Np

MAGNETOGRAM
Bright - Plus
Dark - Minus

E

W

1444 UT

Sp

MT. WILSON

Np

MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY = 12.7
DELTAX = 9.7

E

W

Levels
± 5
± 10
± 20
± 40
± 80

15.95-17.15 UT

Sp

12

Sp

Sp

12

SACRAMENTO PEAK Np

Hα

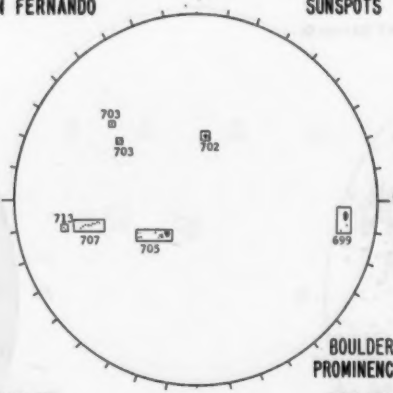
E W

2248 UT

Sp

SAN FERNANDO Np

SUNSPOTS



E W

1800 UT

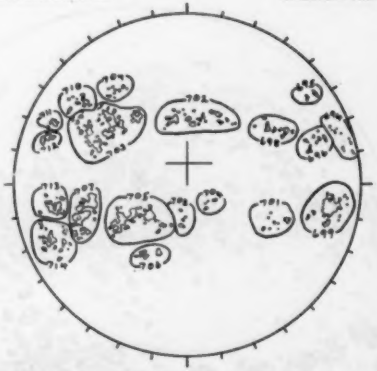
Sp

BOULDER PROMINENCES

NO DATA

HALE OBSERVATORIES Np

CALCIUM REPORT



E W

1633 UT

Sp

GOOD	JA
95- 0200-3.0	
96- 0500-3.0	
98- 0600-3.0	
99- 2400-3.0	
02- 1100-3.0	
03- 3300-3.5	
04- 0200-2.5	
05- 2000-3.5	
06- 0500-3.0	
07- 2300-3.0	
08- 0200-2.5	
10- 0600-3.0	
11- 0300-3.0	
12- 0500-3.0	
13- 1100-3.5	
14- 1400-3.0	

NOSC LA POSTA Np 2.0 CM

NO DATA

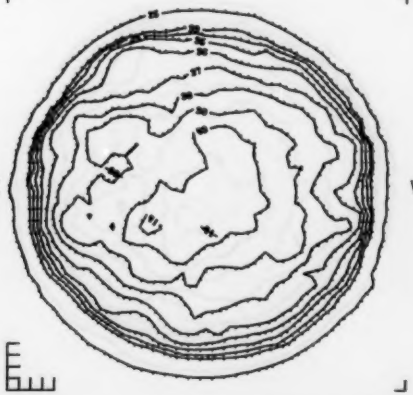
E CALIBRATION W

1603 UT

Sp

Ant. Temp. Unit 100° K

NOSC LA POSTA Np 8.6 MM



E W

1653 UT

Sp

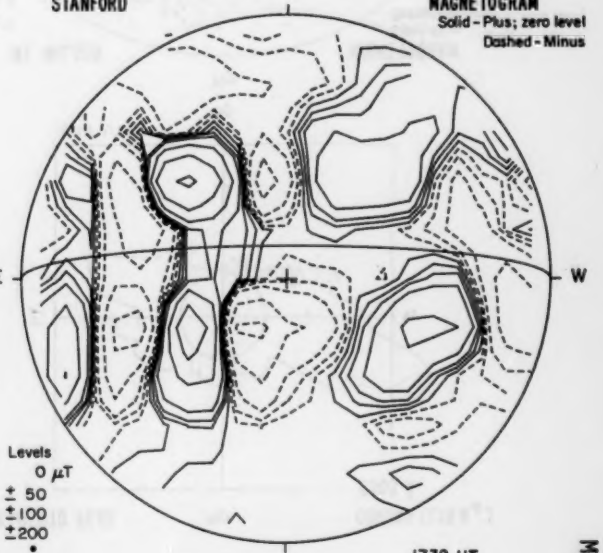
Ant. Temp. Unit 100° K

STANFORD Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



E W

Levels

0 μT

± 50

±100

±200

1732 UT

Sp

65

Mar 80

MARCH 13, 1980 (P=-24.16, B_o=-7.19, L_o=76.99)

SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å

E W

1447 UT

Sp

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus

E W

2129 UT

Sp

MT. WILSON Np MAGNETOGRAM
Solid-Plus
Dotted-Minus
DELTAY = 12.7
DELTAX = 9.4

E W

Levels
± 5
± 10
± 20
± 40
± 80

16.84-18.34 UT

Sp

13

Np

Np

SUNSPOTS

HALE OBSERVATORIES

Np

CALCIUM REPORT

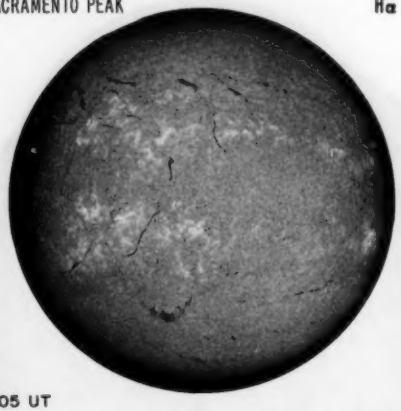
SAN FERNANDO

Sp

Sp

13

SACRAMENTO PEAK Np Hα

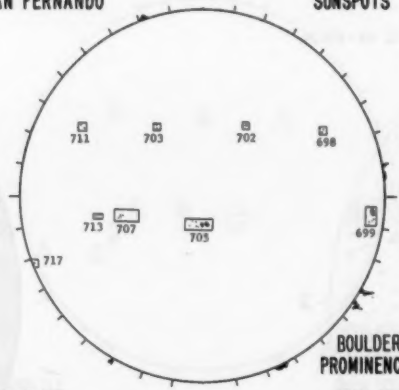


E W

1405 UT

Sp

SAN FERNANDO Np SUNSPOTS



E W

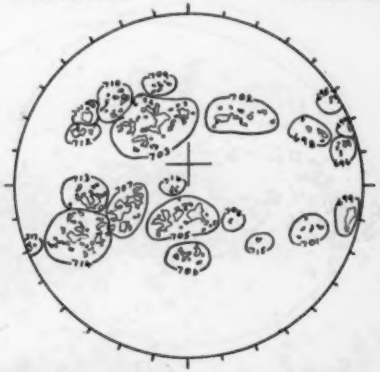
1645 UT

Sp

BOULDER PROMINENCES

1516 UT

HALE OBSERVATORIES Np CALCIUM REPORT



E W

2154 UT

Sp

FAIR	JA
98- 0500-3.0	
99- 1100-3.0	
02- 1200-3.0	
03- 3600-3.5	
05- 2200-3.5	
06- 0700-3.0	
07- 2400-3.5	
11- 0800-3.5	
12- 0700-3.5	
13- 1300-3.5	
14- 2400-3.5	

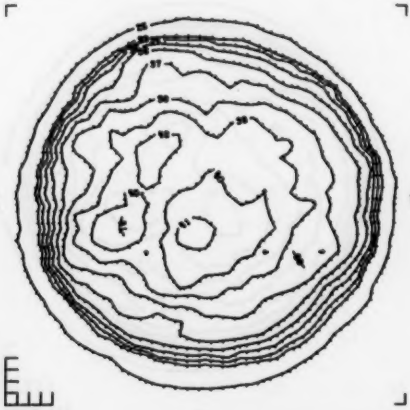
NOSC LA POSTA Np 2.0 CM

NO DATA

E CALIBRATION W

1545 UT Sp Ant. Temp. Unit 100° K

NOSC LA POSTA Np 8.6 MM



E W

1613 UT Sp Ant. Temp. Unit 100° K

STANFORD Np MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus

NO DATA

E W

Levels

0 μT

± 50

±100

±200

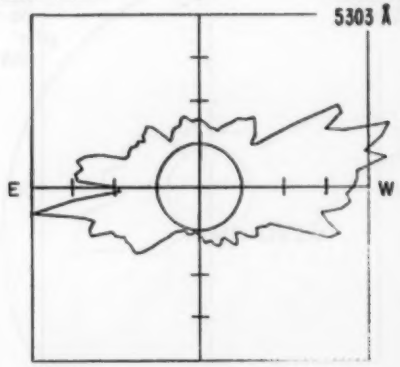
Sp

67

Mar 80

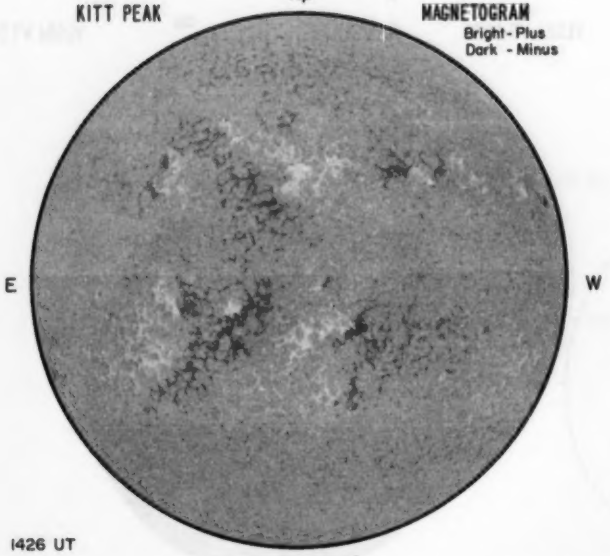
MARCH 14, 1980 (P = -24.33, B_o = -7.18, L_o = 63.81)

SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å



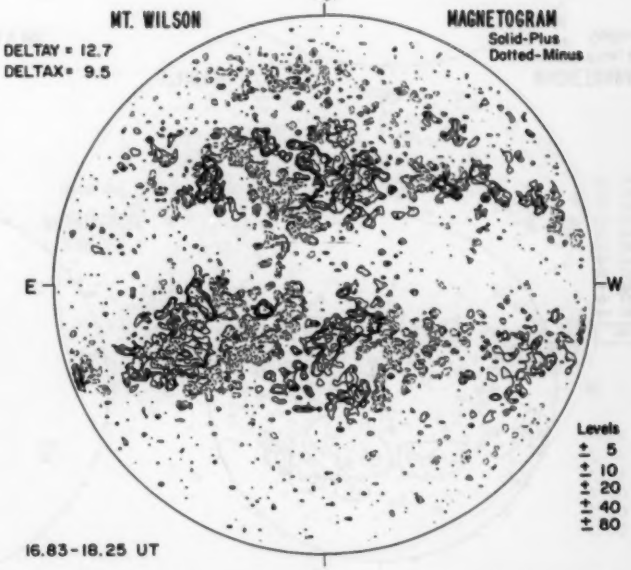
Sp

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus



Sp

MT. WILSON Np MAGNETOGRAM
Solid-Plus
Dotted-Minus
DELTAY = 12.7
DELTAX = 9.5



Sp

14

SACRAMENTO PEAK Np Hα SAN FERNANDO Np SUNSPOTS HALE OBSERVATORIES Np CALCIUM REPORT

Sp

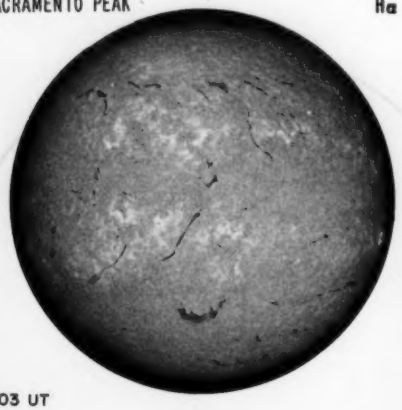
Sp

14

SACRAMENTO PEAK

Np

Hα



E W

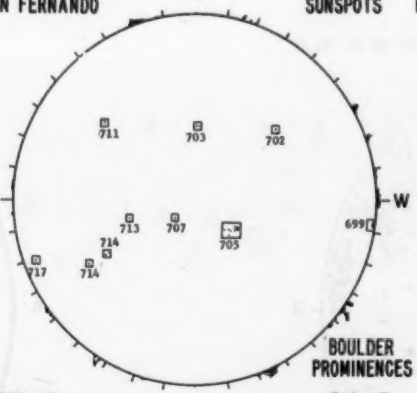
1403 UT

Sp

SAN FERNANDO

Np

SUNSPOTS



E W

1650 UT

Sp

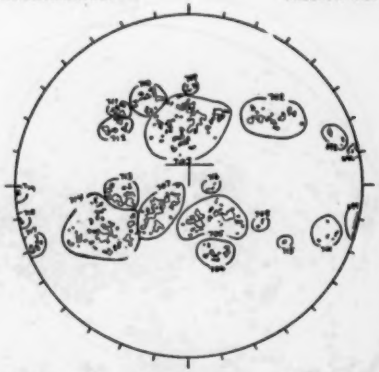
BOULDER PROMINENCES

1514 UT

HALE OBSERVATORIES

Np

CALCIUM REPORT



E W

1931 UT

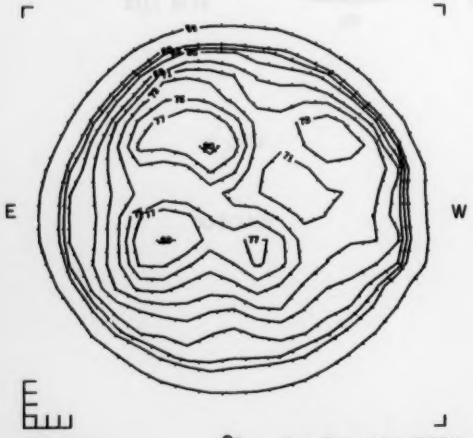
Sp

GOOD	JA
02- 1200-3.0	
03- 3800-3.5	
05- 1800-3.5	
06- 0600-3.0	
07- 1900-3.5	
09- 0200-3.0	
10- 0700-3.0	
11- 0400-2.5	
12- 0600-3.5	
13- 1200-3.5	
14- 2700-3.0	
16- 0100-2.5	
17- 0500-2.5	

NOSC LA POSTA

Np

2.0 CM



E W

1539 UT

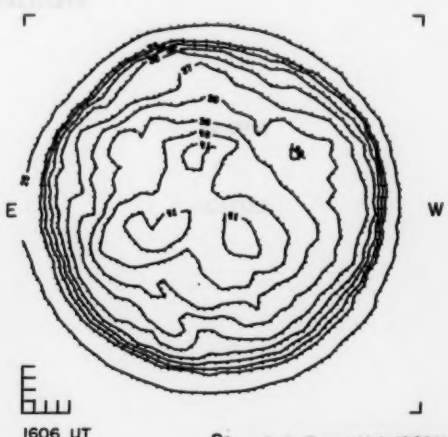
Sp

Ant. Temp. Unit 100° K

NOSC LA POSTA

Np

8.6 MM



E W

1606 UT

Sp

Ant. Temp. Unit 100° K

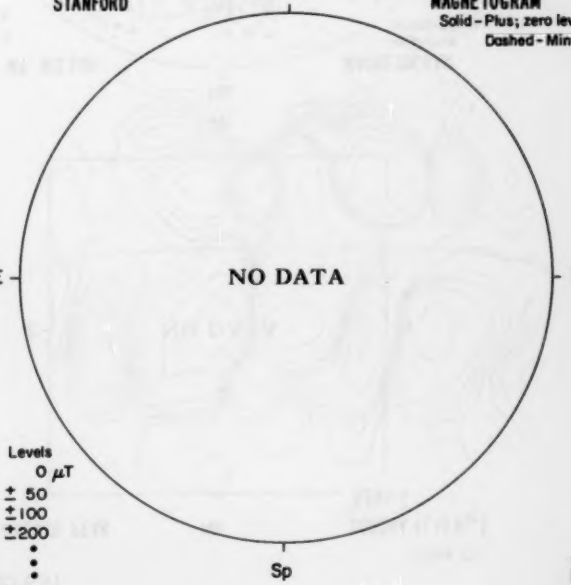
STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



E W

Levels

0 μT

± 50

±100

±200

Sp

69

Mar 80

MARCH 15, 1980 (P=-24.50, B_o=-7.16, L_o=50.63)

SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å

E NO DATA W

Sp

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus

E NO DATA W

Sp

Np

MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY = 12.7
DELTAX = 9.5

E W

Levels
± 5
± 10
± 20
± 40
± 80

17.16-18.59 UT

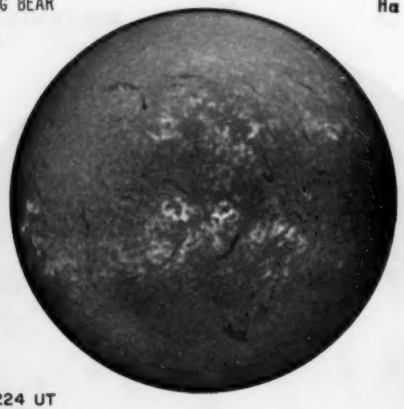
Sp

15

BIG BEAR Np Hα SAN FERNANDO Np SUNSPOTS HALE OBSERVATORIES Np CALCIUM REPORT

15

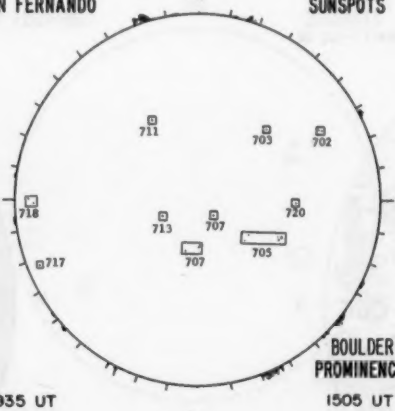
BIG BEAR Np Hα



E W

2224 UT Sp

SAN FERNANDO Np SUNSPOTS



E W

1935 UT Sp

BOULDER PROMINENCES

1505 UT

HALE OBSERVATORIES Np CALCIUM REPORT

E W

Sp

NOSC LA POSTA Np 2.0 CM

NO DATA

E W

SCHEDULE

---- UT Sp Ant. Temp. Unit 100° K

NOSC LA POSTA Np 8.6 MM

NO DATA

E W

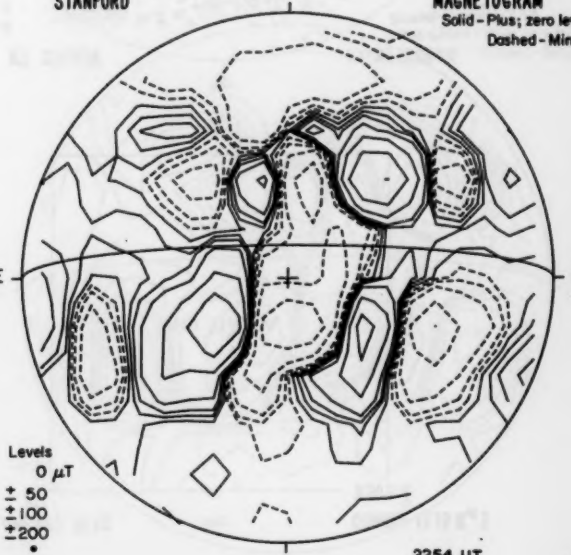
SCHEDULE

---- UT Sp Ant. Temp. Unit 100° K

STANFORD Np MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



E W

Levels 0 μT

± 50

±100

±200

2254 UT Sp

71

Mar 80

MARCH 16, 1980 (P=-24.65, B_o=-7.14, L_o=37.45)

SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å

E NO DATA W

Sp

KITT PEAK Np MAGNETOGRAM
Bright-Plus
Dark - Minus

E W

1440 UT

Sp

MT. WILSON Np MAGNETOGRAM
Solid-Plus
Dotted-Minus
DELTAY = 12.8
DELTAX = 9.5

E W

Levels
± 5
± 10
± 20
± 40
± 80

16.25-17.66 UT

Sp

16

SACRAMENTO PEAK Np

SAN FERNANDO Np

SUNSPOTS HALE OBSERVATORIES Np

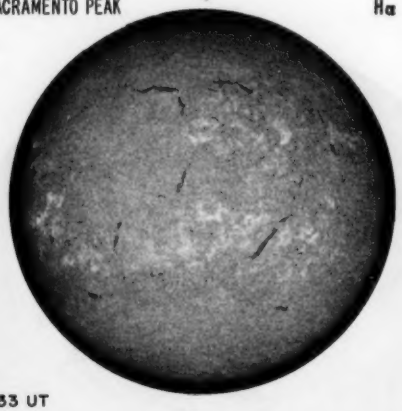
CALCIUM REPORT

Sp

Sp

16

SACRAMENTO PEAK Np Hα

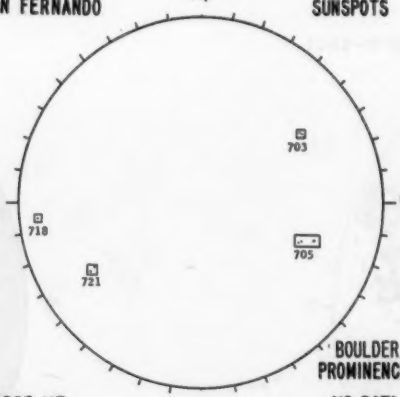


E W

1833 UT

Sp

SAN FERNANDO Np SUNSPOTS



E W

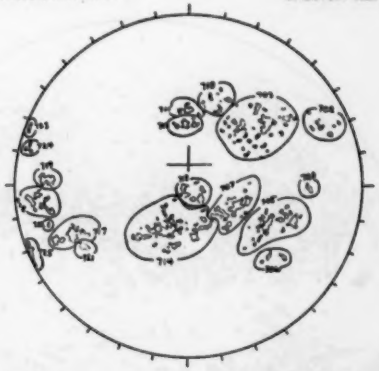
1805 UT

Sp

BOULDER PROMINENCES

NO DATA

HALE OBSERVATORIES Np CALCIUM REPORT



E W

1707 UT

Sp

FAIR	JA
02- 0500-3.0	
03- 2700-3.5	
05- 2000-3.5	
06- 0300-3.0	
07- 1800-3.5	
10- 0500-3.0	
11- 0400-3.0	
12- 0500-3.0	
13- 0700-3.5	
14- 2600-3.0	
17- 1400-3.5	
18- 0900-3.5	
19- 0800-3.5	
20- 0200-3.0	
21- 0400-3.0	
23- 0300-3.0	
25- 0500-3.0	

NOSC LA POSTA Np 2.0 CM

NO DATA

E SCHEDULE W

---- UT

Sp Ant. Temp. Unit 100° K

NOSC LA POSTA Np 8.6 MM

NO DATA

E SCHEDULE W

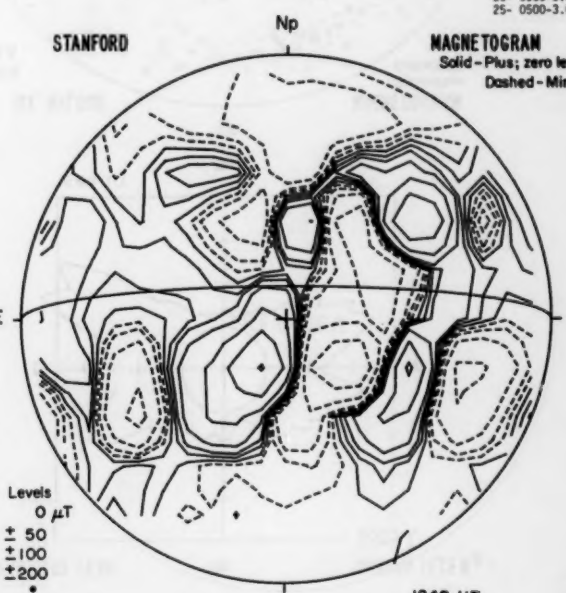
---- UT

Sp Ant. Temp. Unit 100° K

STANFORD Np MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



E W

Levels

0 μT

± 50

±100

±200

1848 UT

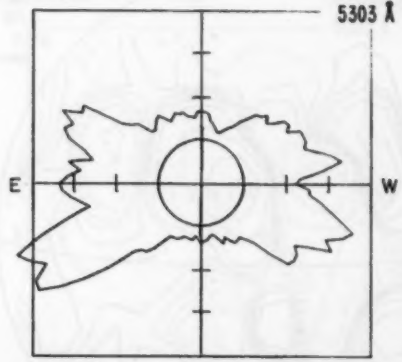
Sp

73

Mar 80

MARCH 17, 1980 (P=-24.80, B_o=-7.11, L_o=24.27)

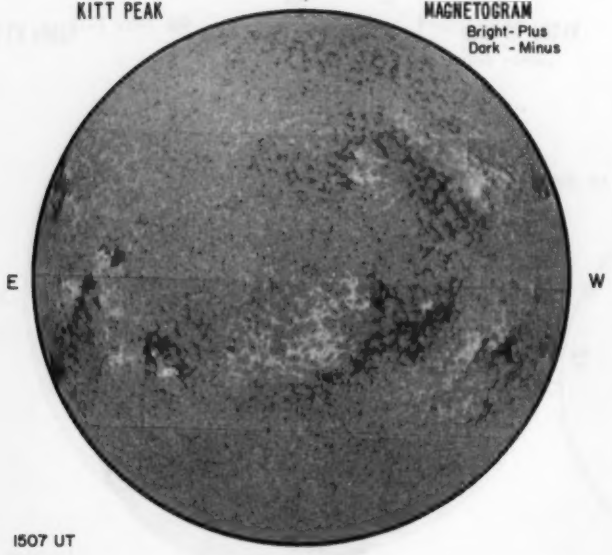
SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å



1644 UT

Sp

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus



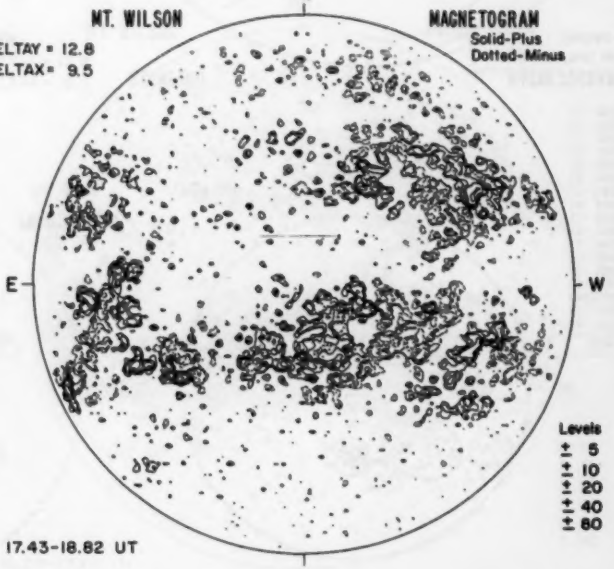
1507 UT

Sp

Np

MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY = 12.8
DELTAX = 9.5



17.43-18.82 UT

Sp

17

SACRAMENTO PEAK Np H-

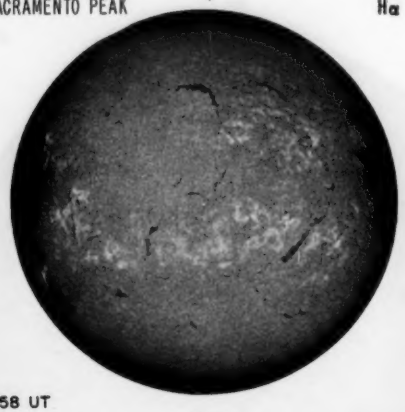
SAN FERNANDO Np

SUNSPOTS HALE OBSERVATORIES Np

CALCIUM REPORT

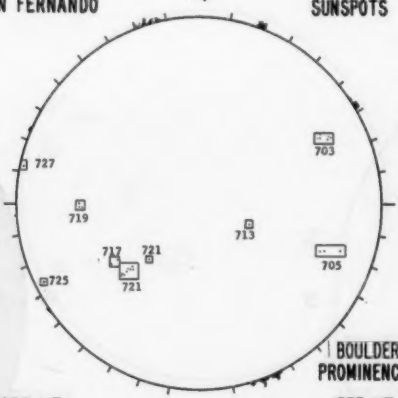
17

SACRAMENTO PEAK Hα



1458 UT

SAN FERNANDO SUNSPOTS

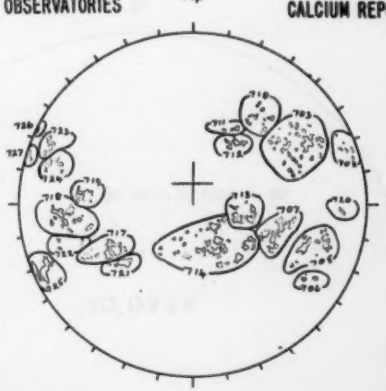


1830 UT

BOULDER PROMINENCES

1533 UT

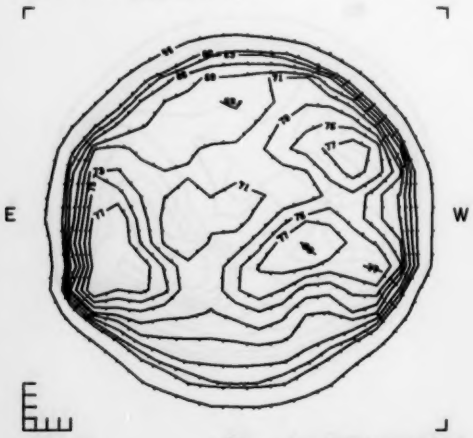
HALE OBSERVATORIES CALCIUM REPORT



2154 UT

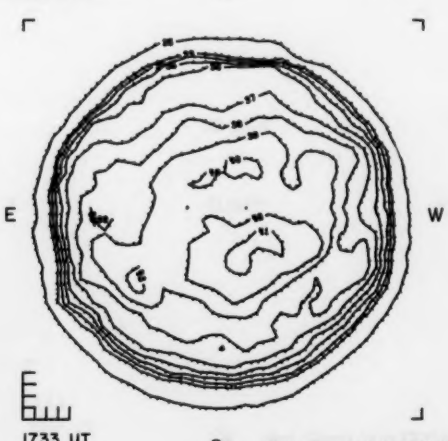
6000	JA
03-	2200-3.0
05-	1300-3.0
06-	0200-2.5
07-	1500-3.0
10-	0500-2.5
11-	0200-2.5
12-	0500-2.5
13-	0800-3.0
14-	2500-3.0
17-	1300-3.5
18-	1400-3.5
19-	0700-3.5
21-	0600-3.0
22-	0200-2.5
23-	0500-3.5
24-	0500-2.5
25-	1300-3.5
27-	0300-2.5

NOSC LA POSTA 2.0 CM



1700 UT Ant. Temp. Unit 100° K

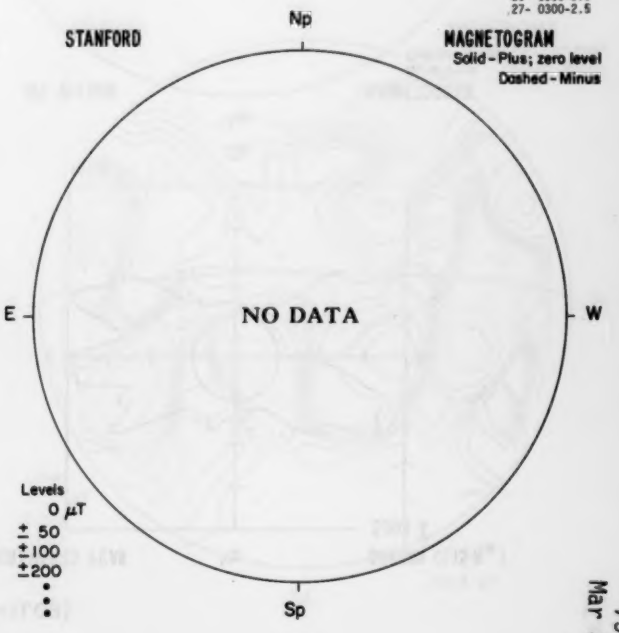
NOSC LA POSTA 8.6 MM



1733 UT. Ant. Temp. Unit 100° K

STANFORD MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus

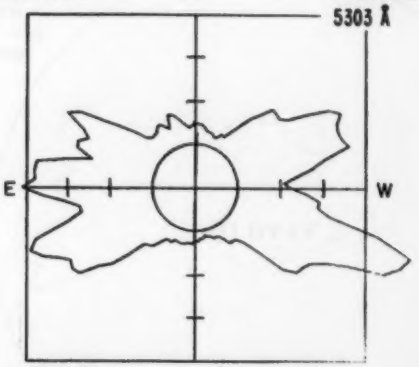


Levels
0 μT
± 50
±100
±200

75
Mar 80

MARCH 18, 1980 (P=24.94, B_o=-7.09, L_o=11.09)

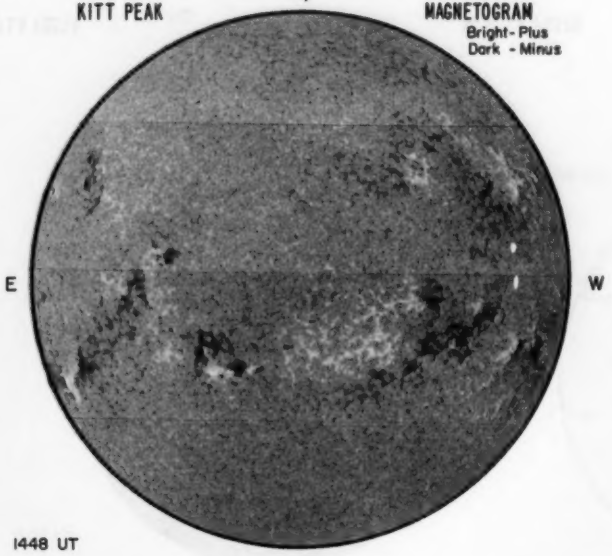
SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å



1533 UT

Sp

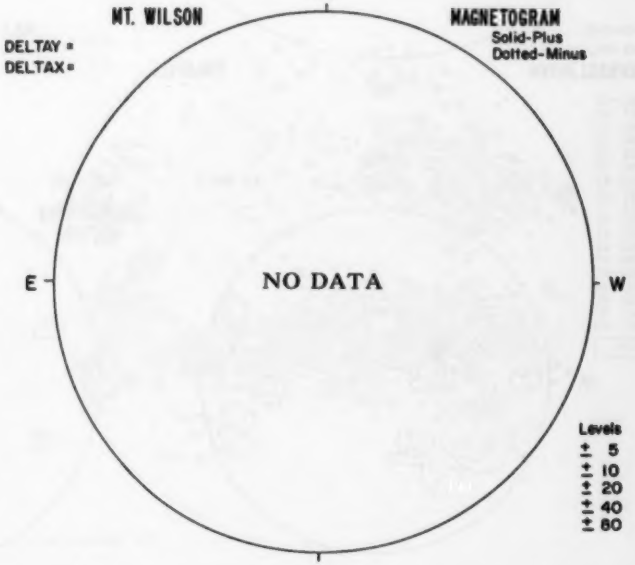
KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus



1448 UT

Sp

MT. WILSON Np MAGNETOGRAM
Solid-Plus
Dotted-Minus
DELTAY =
DELTAX =



Sp

18

SACRAMENTO PEAK Np Hα BOULDER Np SUNSPOTS HALE OBSERVATORIES Np CALCIUM REPORT

Sp

Sp

18

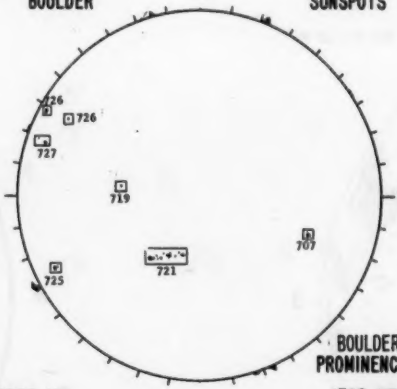
SACRAMENTO PEAK Np Hα

E W

1508 UT

Sp

BOULDER Np



E W E

2000 UT

Sp

SUNSPOTS HALE OBSERVATORIES Np

BOULDER PROMINENCES

1745 UT

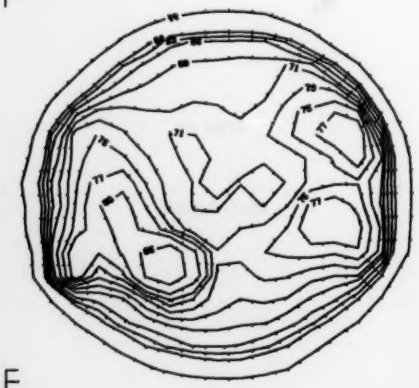
Sp

CALCIUM REPORT

NO DATA MARCH 18 - 22

E W

NOSC LA POSTA Np 2.0 CM



E W

1540 UT

Sp Ant. Temp. Unit 100° K

NOSC LA POSTA Np 8.6 MM

NO DATA

CLOUDY

E W

1607 UT

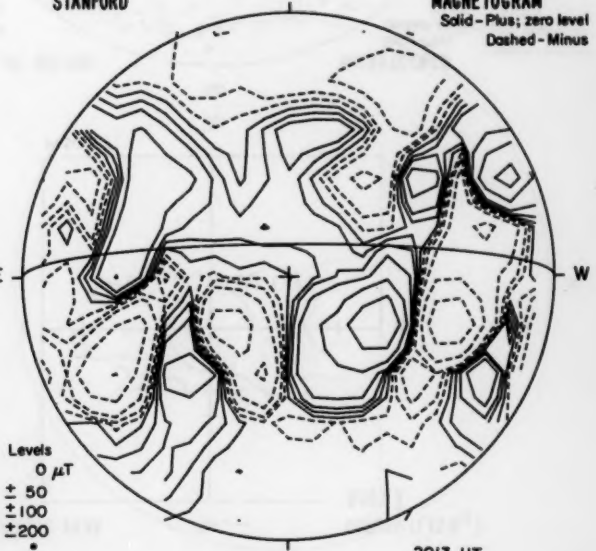
Sp Ant. Temp. Unit 100° K

STANFORD Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



E W

Levels

0 μT

± 50

±100

±200

2013 UT

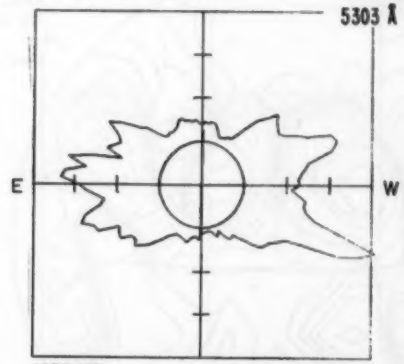
Sp

77

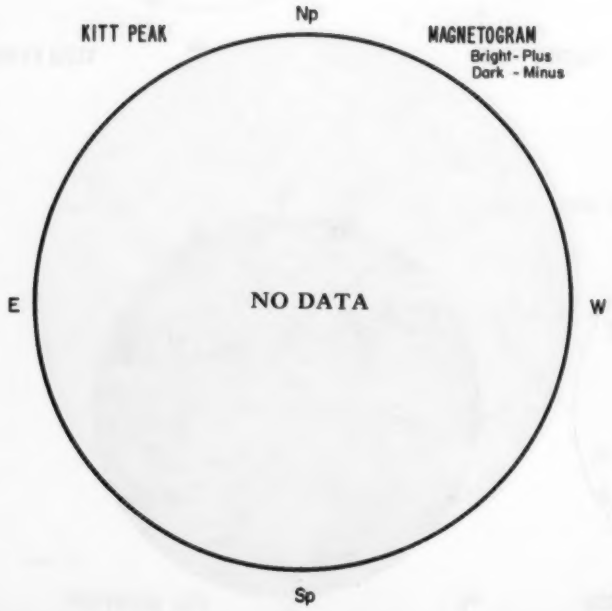
Mar 80

MARCH 19, 1980 (P =-25.08, B_o =-7.06, L_o =357.93)

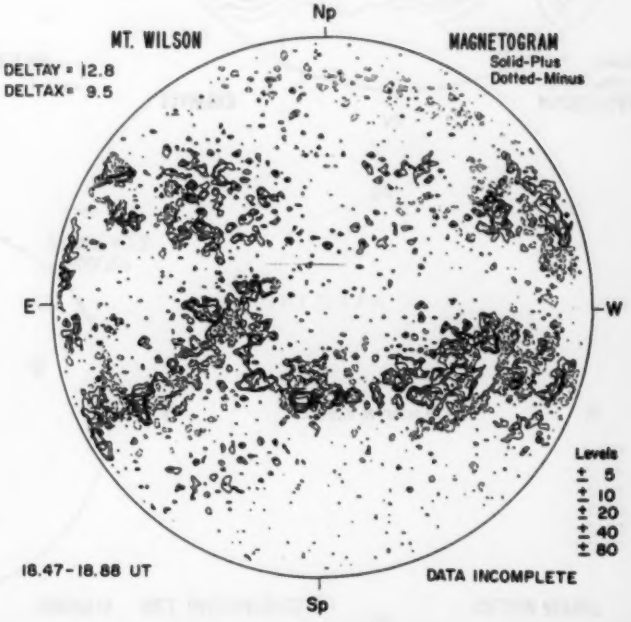
SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å



KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus



MT. WILSON Np MAGNETOGRAM
Solid-Plus
Dotted-Minus
DELTAY = 12.8
DELTAX = 9.5



18.47-18.88 UT DATA INCOMPLETE

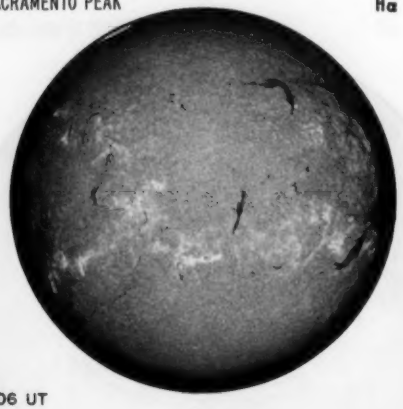
19
SACRAMENTO PEAK Np Hα SAN FERNANDO Np SUNSPOTS HALE OBSERVATORIES Np CALCIUM REPORT

Sp

Sp

19

SACRAMENTO PEAK Np Hα

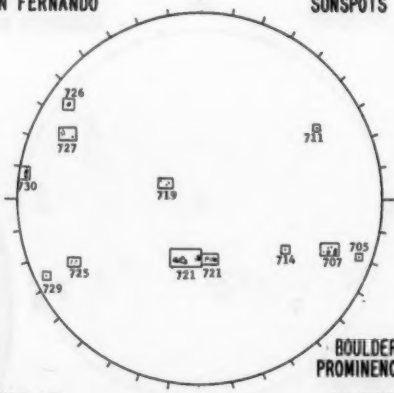


E W

1506 UT

Sp

SAN FERNANDO Np



E W

1700 UT

Sp

SUNSPOTS HALE OBSERVATORIES Np

BOULDER PROMINENCES

NO DATA

E W

Sp

CALCIUM REPORT

W

NOSC LA POSTA Np 2.0 CM

NO DATA

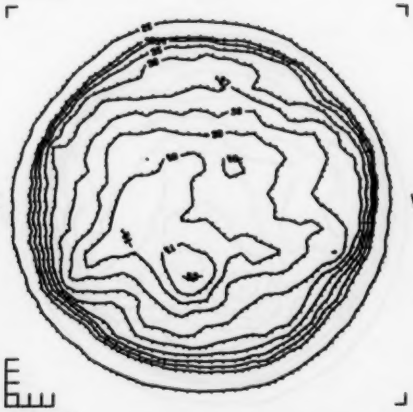
CALIBRATION

E W

1549 UT

Sp Ant. Temp. Unit 100° K

NOSC LA POSTA Np 8.6 MM



E W

1616 UT

Sp Ant. Temp. Unit 100° K

STANFORD Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus

NO DATA

E W

Levels

0 μT

± 50

±100

±200

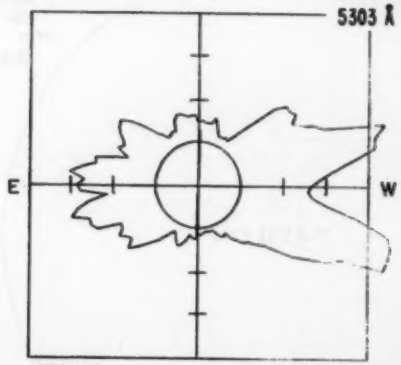
Sp

79

Mar 80

MARCH 20, 1980 (P=-25.21, B_o=-7.03, L_o=344.72)

SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å

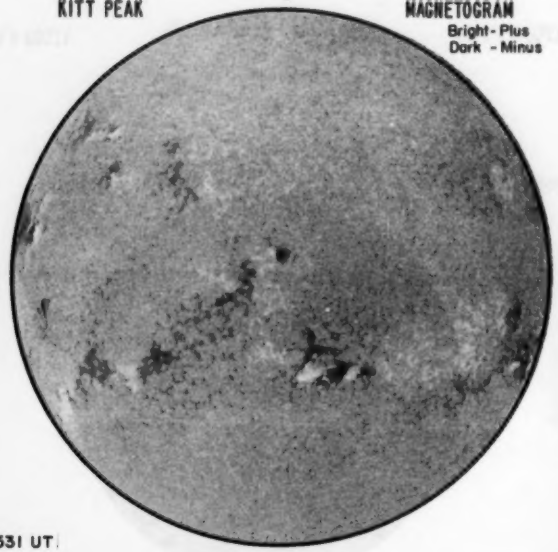


1430 UT

Sp

Np

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus



1531 UT

Sp

MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY =
DELTAX =

E NO DATA 20-25 MARCH W

Levels
± 5
± 10
± 20
± 40
± 80

Sp

Np Np Np

Sp

Sp

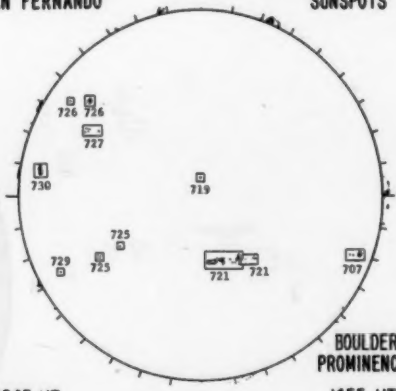
20

SACRAMENTO PEAK Np Hα

E W

1513 UT Sp

SAN FERNANDO Np SUNSPOTS



E W

1645 UT Sp

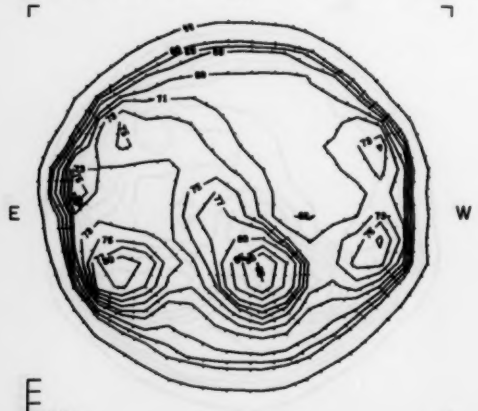
HALE OBSERVATORIES Np CALCIUM REPORT

BOULDER PROMINENCES

E W

1455 UT Sp

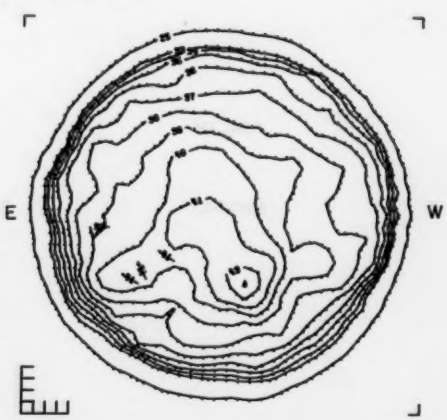
NOSC LA POSTA Np 2.0 CM



E W

1526 UT Sp Ant. Temp. Unit 100° K

NOSC LA POSTA Np 8.6 MM



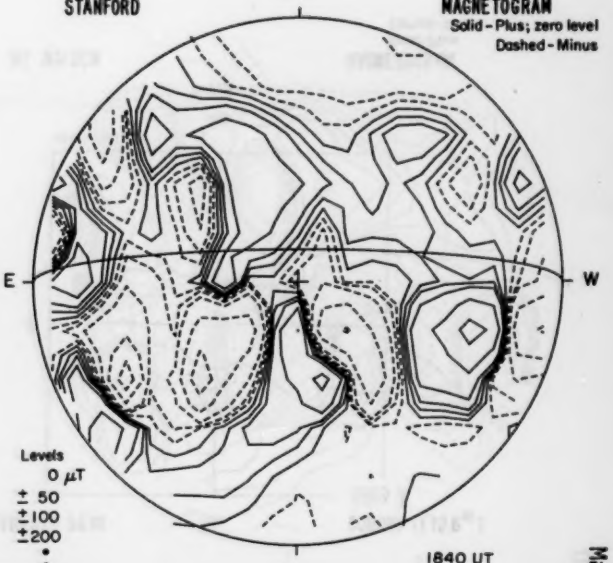
E W

1553 UT Sp Ant. Temp. Unit 100° K

STANFORD Np MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



E W

Levels

0 μT

± 50

±100

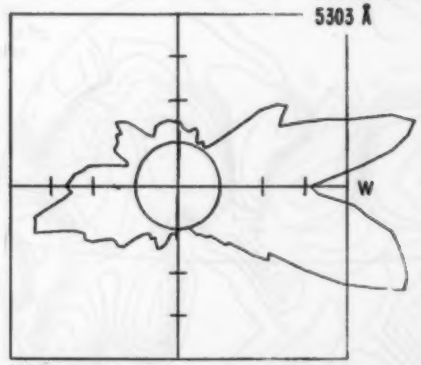
±200

1840 UT Sp

81 Mar 80

MARCH 21, 1980 (P=-25.33, B_o=-7.00, L_o=331.54)

SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å

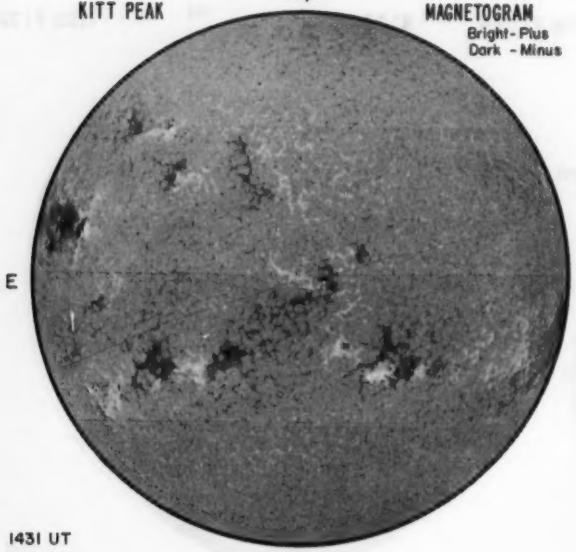


1449 UT

Sp

Np

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus



1431 UT

Sp

MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY =
DELTAX =

E W

Levels
+ 5
++ 10
+++ 20
++++ 40
+++++ 60

Sp

21

SACRAMENTO PEAK Np

SAN FERNANDO Np

SUNSPOTS HALE OBSERVATORIES Np

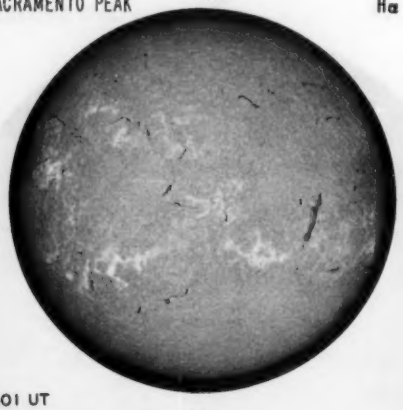
CALCIUM REPORT

Sp

Sp

21

SACRAMENTO PEAK Np Hα

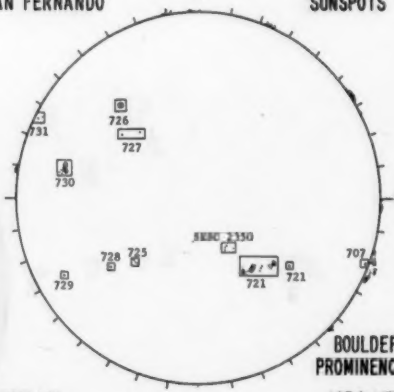


E W

1401 UT

Sp

SAN FERNANDO Np



E W

1733 UT

Sp

SUNSPOTS HALE OBSERVATORIES Np

E W

BOULDER PROMINENCES

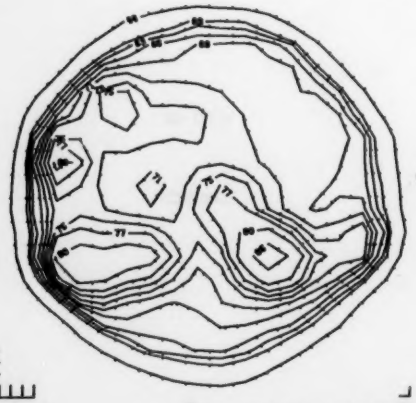
1454 UT

Sp

CALCIUM REPORT

W

NOSC LA POSTA Np 2.0 CM



E W

1832 UT

Sp Ant. Temp. Unit 100° K

NOSC LA POSTA Np 8.6 MM

NO DATA

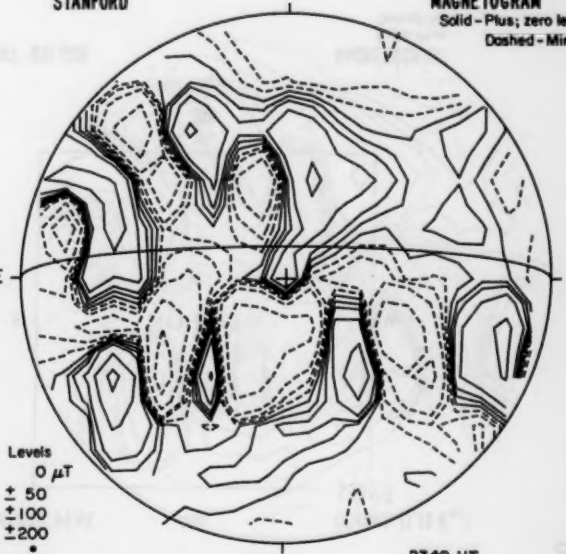
WEATHER

---- UT

Sp Ant. Temp. Unit 100° K

STANFORD Np

MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus



E W

Levels
0 μT
± 50
±100
±200

2340 UT

Sp

83
Mar 80

MARCH 22, 1980 (P=-25.45, B_o=-6.97, L_o=318.36)

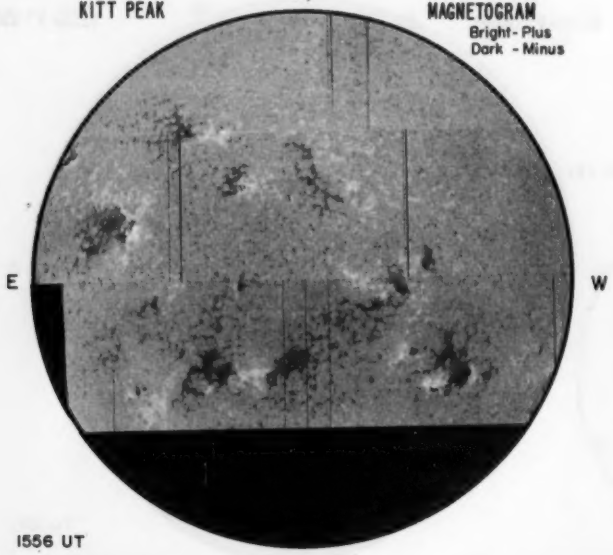
SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å

E NO DATA W

Sp

Np

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus



E W

1556 UT

Sp

MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY =
DELTAX =

E W

Levels
± 5
± 10
± 20
± 40
± 80

Sp

Np Np Np

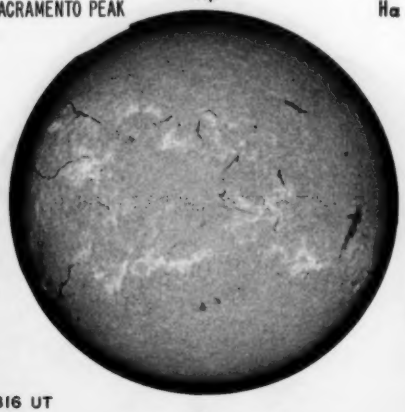
SUNSPOTS HALE OBSERVATORIES CALCIUM REPORT

Sp

Sp

22

SACRAMENTO PEAK Np Hα

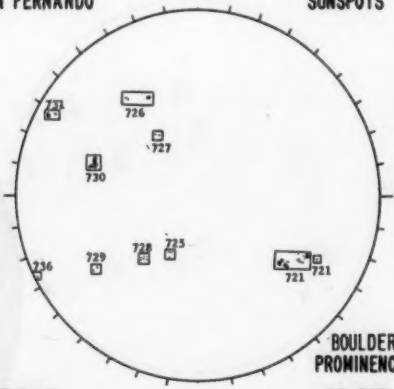


E W

1816 UT

Sp

SAN FERNANDO Np



E W

1715 UT

Sp

SUNSPOTS HALE OBSERVATORIES Np

BOULDER PROMINENCES

NO DATA

E W

Sp

CALCIUM REPORT

E W

Sp

NOSC LA POSTA Np 2.0 CM

NO DATA

E W

SCHEDULE

---- UT

Sp Ant. Temp. Unit 100° K

NOSC LA POSTA Np 8.6 MM

NO DATA

E W

SCHEDULE

---- UT

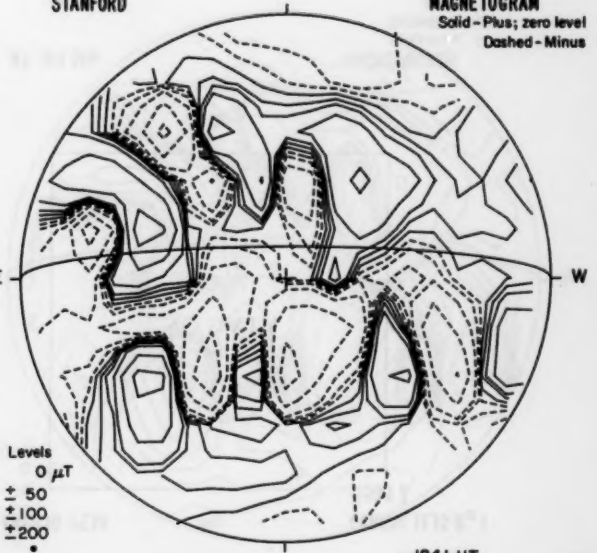
Sp Ant. Temp. Unit 100° K

STANFORD Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



E W

Levels

0 μT

± 50

±100

±200

1841 UT

Sp

85

Mar 80

MARCH 23, 1980 (P=-25.55, B_o=-6.93, L_o=305.17)

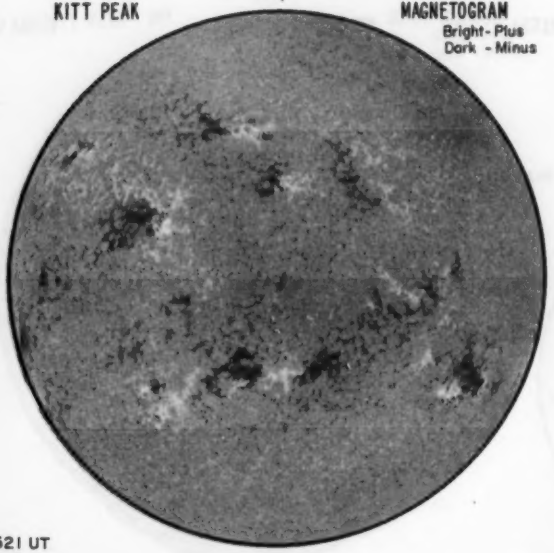
SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å

E NO DATA W

Sp

Np

KITT PEAK Np MAGNETOGRAM
Bright-Plus
Dark - Minus



E W

1521 UT

Sp

MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY =
DELTAX =

E W

Levels
± 5
± 10
± 20
± 40
± 80

Sp

23

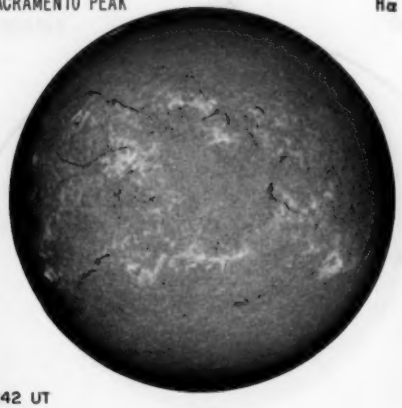
SACRAMENTO PEAK Np Hα SAN FERNANDO Np SUNSPOTS HALE OBSERVATORIES Np CALCIUM REPORT

Sp

Sp

23

SACRAMENTO PEAK Np Hα

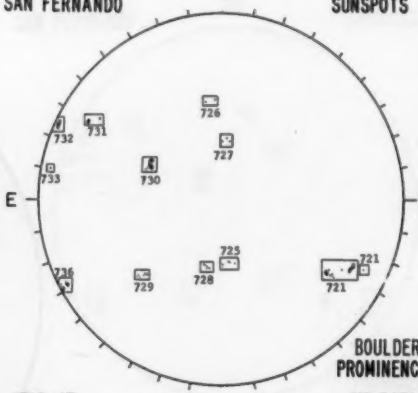


E W

2242 UT

Sp

SAN FERNANDO Np SUNSPOTS



E W

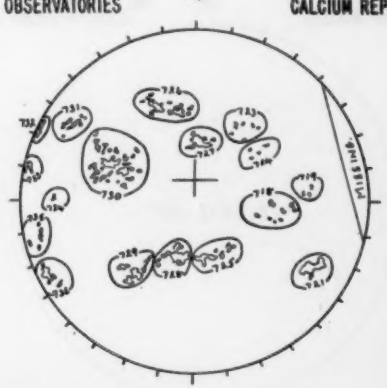
1710 UT

Sp

BOULDER PROMINENCES

NO DATA

HALE OBSERVATORIES Np



E W

1659 UT

Sp

CALCIUM REPORT

V POOR	JA
18- 0800-3.0	
19- 0200-3.0	
21- 1400-3.5	
25- 0900-3.0	
26- 1200-3.0	
27- 0700-3.0	
28- 1100-3.0	
29- 1300-3.0	
30- 2600-3.0	
31- 0600-3.0	
32- 0500-3.0	
33- 0300-2.5	
36- 0900-3.0	

NOSC LA POSTA Np 2.0 CM

NO DATA

E W

SCHEDULE

---- UT

Sp Ant. Temp. Unit 100° K

NOSC LA POSTA Np 8.6 MM

NO DATA

E W

SCHEDULE

---- UT

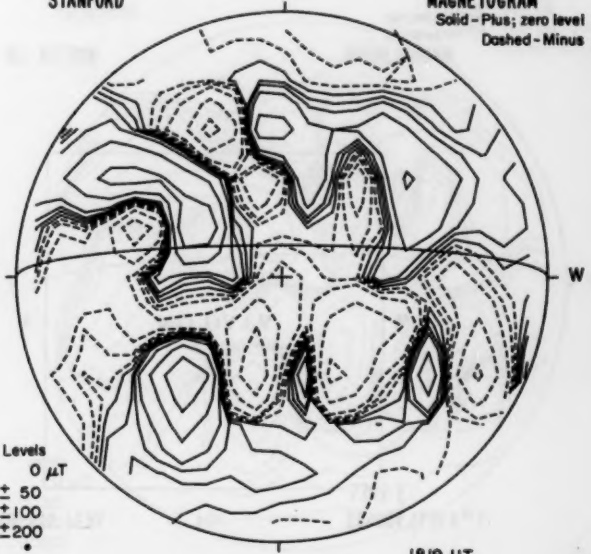
Sp Ant. Temp. Unit 100° K

STANFORD Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



E W

Levels

0 μT

± 50

±100

±200

1819 UT

Sp

87

Mar 80

MARCH 24, 1980 (P=-25.66, B_o=-6.89, L_o=291.98)

SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å

E NO DATA W

Sp

Np

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus

E NO DATA W

Sp

MT. WILSON MAGNETOGRAM
Solid - Plus
Dotted - Minus

DELTAY =
DELTAX =

E W

Sp

Levels
+ 5
+ + 10
+ + + 20
+ + + + 40
+ + + + + 80

Np Np Np

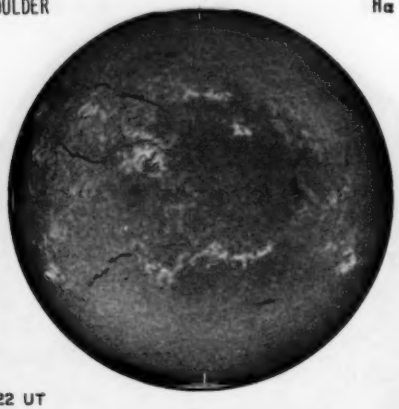
Sp

Sp

BOULDER

Np

Hα



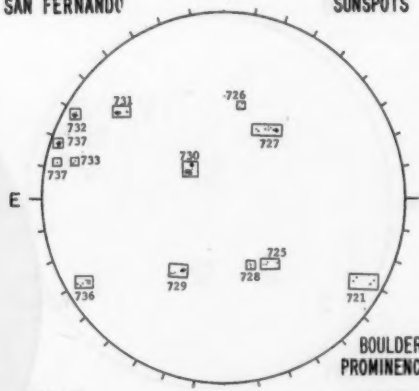
E W

1422 UT

Sp

SAN FERNANDO

Np



E W

1630 UT

Sp

SUNSPOTS

BOULDER PROMINENCES

NO DATA

HALE OBSERVATORIES

Np

NO DATA

E W

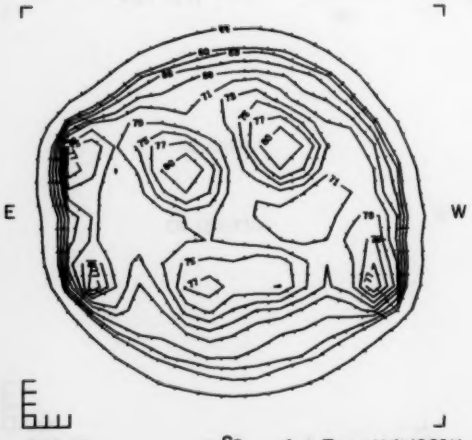
Sp

CALCIUM REPORT

NOSC LA POSTA

Np

2.0 CM



E W

1558 UT

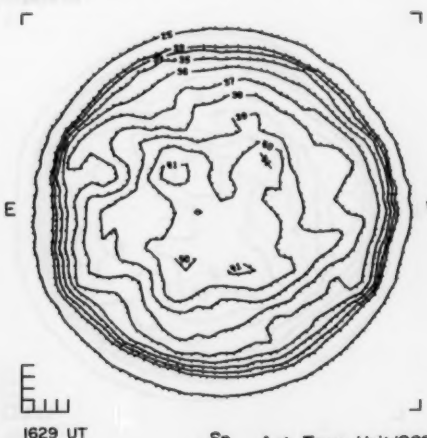
Sp

Ant. Temp. Unit 100° K

NOSC LA POSTA

Np

8.6 MM



E W

1629 UT

Sp

Ant. Temp. Unit 100° K

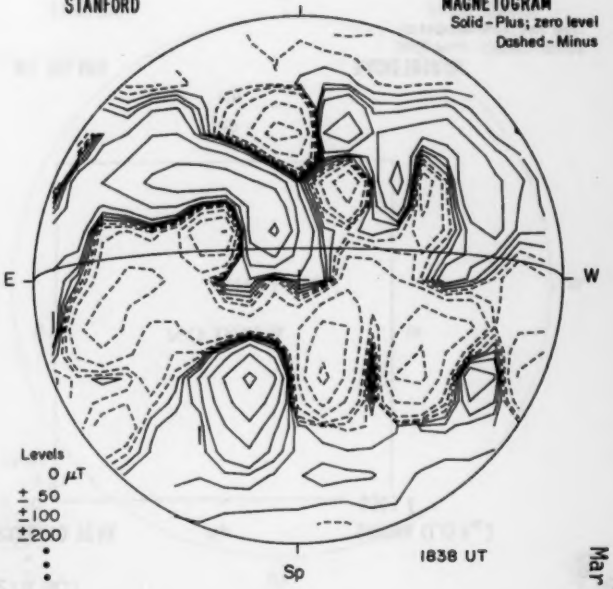
STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



E W

Levels

0 μT

± 50

±100

±200

•

•

•

1838 UT

Sp

89 Mar 80

MARCH 25, 1980 (P = -25.75, B_o = -6.85, L_o = 278.80)

SACRAMENTO PEAK

Np

CORONA (1.15 $R_\odot$)
5303 Å

E

NO DATA

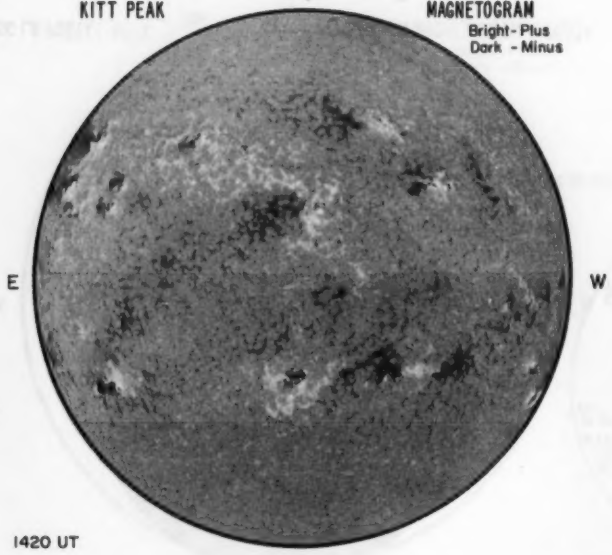
W

Sp

Np

KITT PEAK

MAGNETOGRAM
Bright - Plus
Dark - Minus



1420 UT

MT. WILSON

DELTAY =
DELTAX =

MAGNETOGRAM
Solid-Plus
Dotted-Minus

E

W

Sp

Levels
± 5
± 10
± 20
± 40
± 80

25

SACRAMENTO PEAK

Np

Hα

SAN FERNANDO

Np

SUNSPOTS

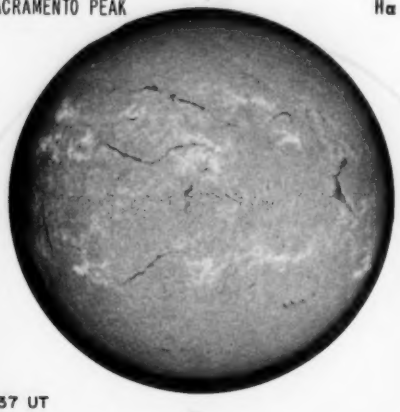
HALE OBSERVATORIES

Np

CALCIUM REPORT

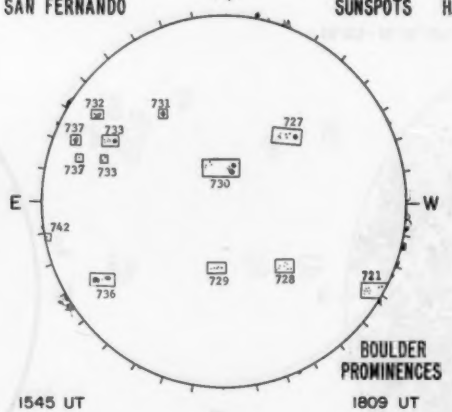
25

SACRAMENTO PEAK Hα



1737 UT

SAN FERNANDO SUNSPOTS



1545 UT

BOULDER PROMINENCES

1809 UT

HALE OBSERVATORIES CALCIUM REPORT

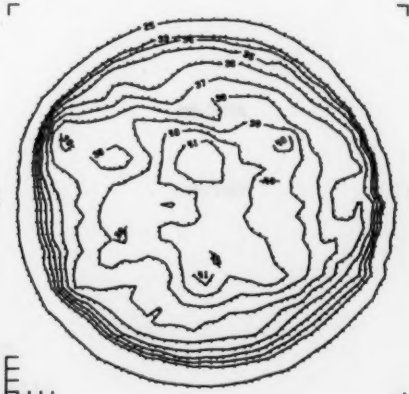
NOSC LA POSTA Np 2.0 CM

NO DATA

CALIBRATION

1524 UT Sp Ant. Temp. Unit 100° K

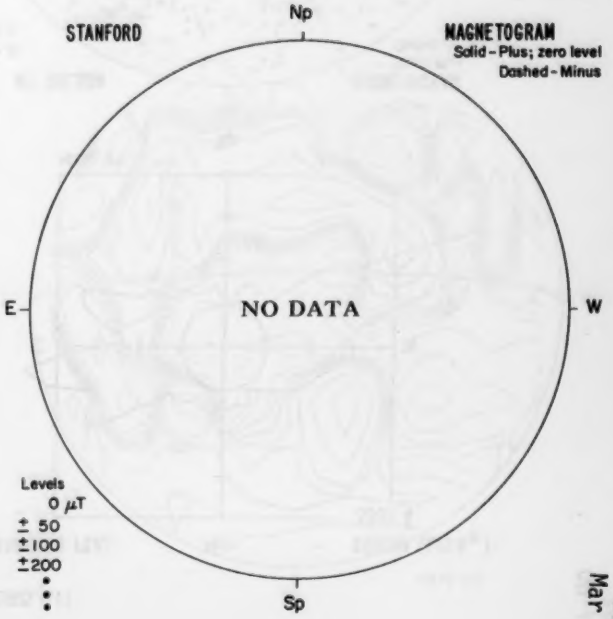
NOSC LA POSTA Np 8.6 MM



1549 UT Sp Ant. Temp. Unit 100° K

STANFORD

MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus

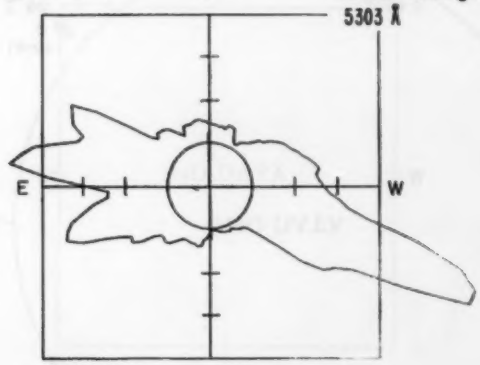


Levels
0 μT
± 50
±100
±200

91
Mar 80

MARCH 26, 1980 (P = -25.84, B_o = -6.81, L_o = 265.61)

SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å



1602 UT

Sp

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus

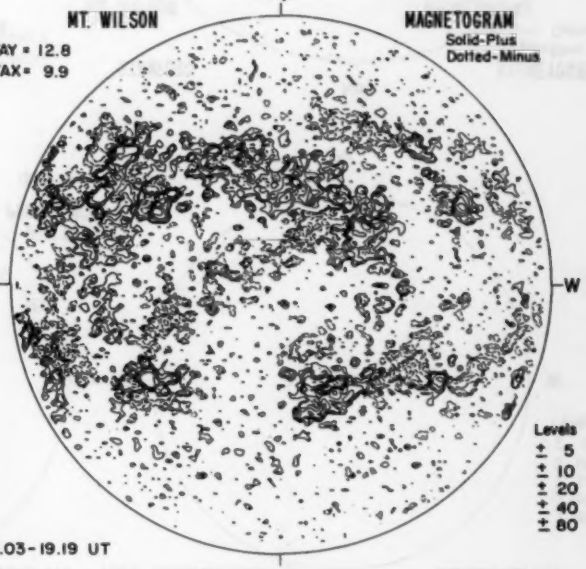
NO DATA

E W

Sp

Np MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY = 12.8
DELTAX = 9.9



18.03 - 19.19 UT

Sp

26

SACRAMENTO PEAK Np Hα SAN FERNANDO Np SUNSPOTS HALE OBSERVATORIES Np CALCIUM REPORT

26

SACRAMENTO PEAK

Np

Hα

E W

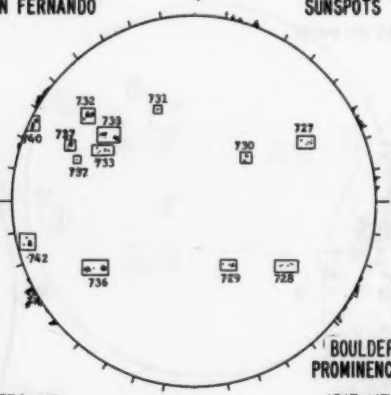
1413 UT

Sp

SAN FERNANDO

Np

SUNSPOTS



E W

1730 UT

Sp

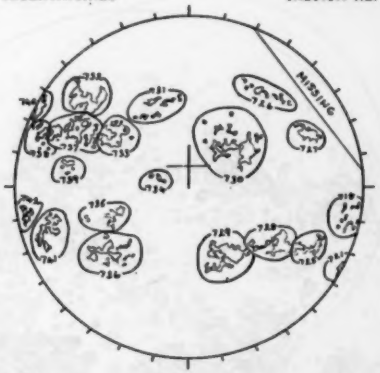
BOULDER PROMINENCES

1813 UT

HALE OBSERVATORIES

Np

CALCIUM REPORT



E W

2130 UT

Sp

FAIR	JA
21- 0400-2.5	
25- 1000-3.0	
26- 0900-3.0	
27- 1200-3.0	
28- 1900-3.0	
29- 2300-3.0	
30- 2500-3.0	
31- 0800-3.0	
32- 3100-3.5	
33- 2000-3.0	
34- 0200-2.5	
35- 0500-2.5	
36- 1500-3.0	
37- 2700-3.5	
38- 0600-3.5	
39- 0400-2.5	
40- 1000-4.0	
41- 1500-3.0	
42- 0500-3.5	

NOSC LA POSTA

Np

2.0 CM

NO DATA

E

WEATHER

W

UT

Sp

Ant. Temp. Unit 100° K

NOSC LA POSTA

Np

8.6 MM

NO DATA

E

WEATHER

W

UT

Sp

Ant. Temp. Unit 100° K

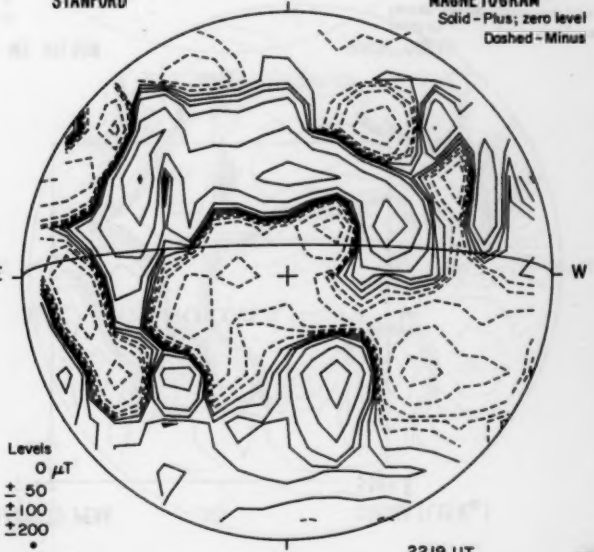
STANFORD

Np

MAGNETOGRAM

Solid – Plus; zero level

Dashed – Minus



E W

Levels

0 μT

± 50

±100

±200

2219 UT

Sp

93

Mar 80

MARCH 27, 1980 (P=-25.92, B_o=-6.77, L_o=252.42)

SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å

E NO DATA W

Sp

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus

E NO DATA W

Sp

MT. WILSON Np MAGNETOGRAM
Solid-Plus
Dotted-Minus
DELTAY = 12.8
DELTAX = 9.6

E W

Levels
± 5
± 10
± 20
± 40
± 80

16.94-18.39 UT

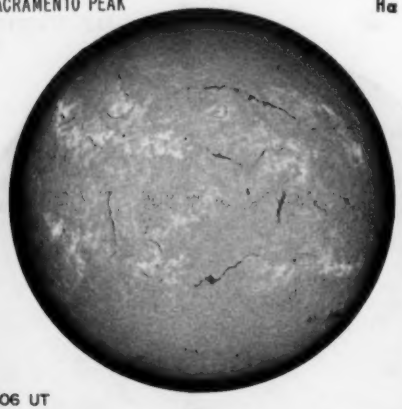
Sp

27

SACRAMENTO PEAK Np Hα SAN FERNANDO Np SUNSPOTS HALE OBSERVATORIES Np CALCIUM REPORT

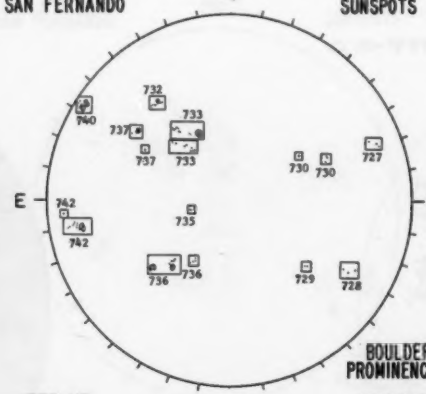
27

SACRAMENTO PEAK Np Hα



2306 UT Sp

SAN FERNANDO Np SUNSPOTS



1700 UT Sp

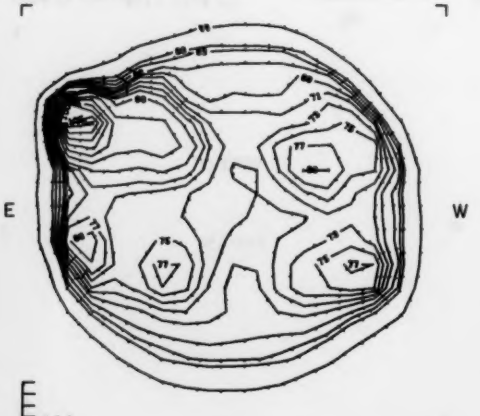
BOULDER PROMINENCES

NO DATA

HALE OBSERVATORIES Np CALCIUM REPORT

Sp

NOSC LA POSTA Np 2.0 CM



1525 UT Sp Ant. Temp. Unit 100° K

NOSC LA POSTA Np 8.6 MM

NO DATA

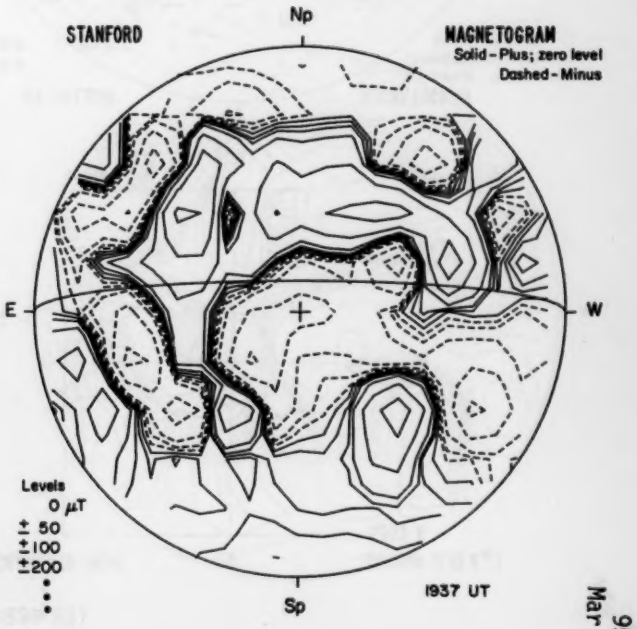
CLOUDY

1600 UT Sp Ant. Temp. Unit 100° K

STANFORD Np MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



1937 UT Sp

95

Mar 80

MARCH 28, 1980 (P=-25.99, B_o=-6.72, L_o=239.23)

SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å

E W

1520 UT Sp

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus

E W

1442 UT Sp

MT. WILSON Np MAGNETOGRAM
DELTAY = 12.8 Solid-Plus
DELTAX = 9.5 Dotted-Minus

E W

Levels
± 5
± 10
± 20
± 40
± 80

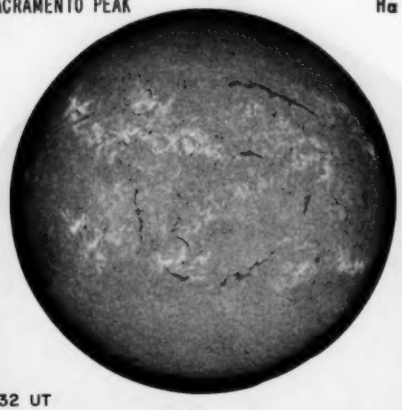
17.30-18.68 UT Sp

28

SACRAMENTO PEAK Np Hα SAN FERNANDO Np SUNSPOTS HALE OBSERVATORIES Np CALCIUM REPORT

28

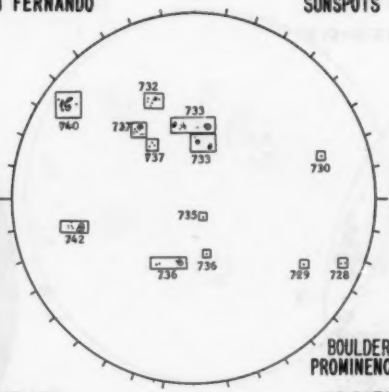
SACRAMENTO PEAK Np Hα



E W

1532 UT Sp

SAN FERNANDO Np SUNSPOTS



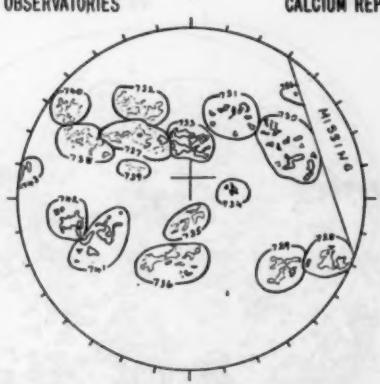
E W

1825 UT Sp

BOULDER PROMINENCES

NO DATA

HALE OBSERVATORIES Np CALCIUM REPORT



E W

1745 UT Sp

POOR	JA
26- 0100-3.0	
28- 2000-3.0	
29- 1300-3.0	
30- 2200-3.0	
31- 1000-2.5	
32- 2500-3.5	
33- 2200-3.0	
35- 1000-3.0	
36- 2000-3.0	
37- 2700-3.5	
38- 1600-3.5	
40- 2400-3.5	
41- 2200-3.0	
42- 2000-3.0	
43- 0600-3.5	

NOSC LA POSTA Np 2.0 CM

NO DATA

E W

WEATHER

---- UT Sp Ant. Temp. Unit 100° K

NOSC LA POSTA Np 8.6 MM

NO DATA

E W

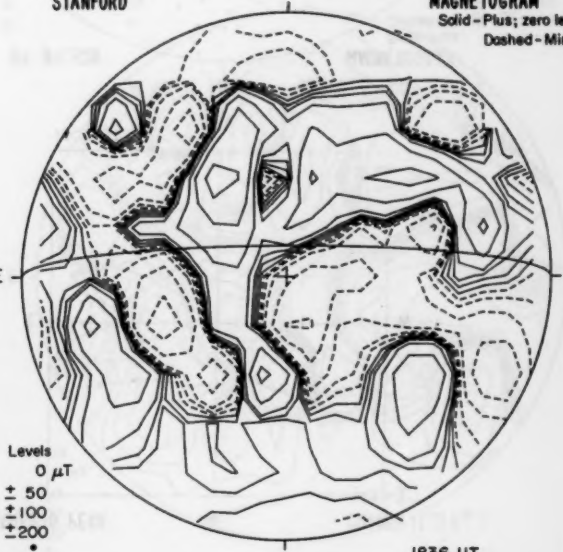
WEATHER

---- UT Sp Ant. Temp. Unit 100° K

STANFORD Np MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



E W

Levels

0 μT

± 50

±100

±200

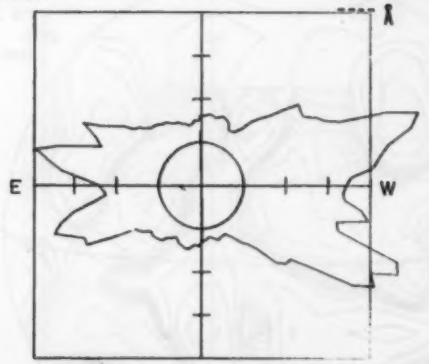
1836 UT Sp

97

Mar 80

MARCH 29, 1980 (P = -26.05, B_o = -6.67, L_o = 226.04)

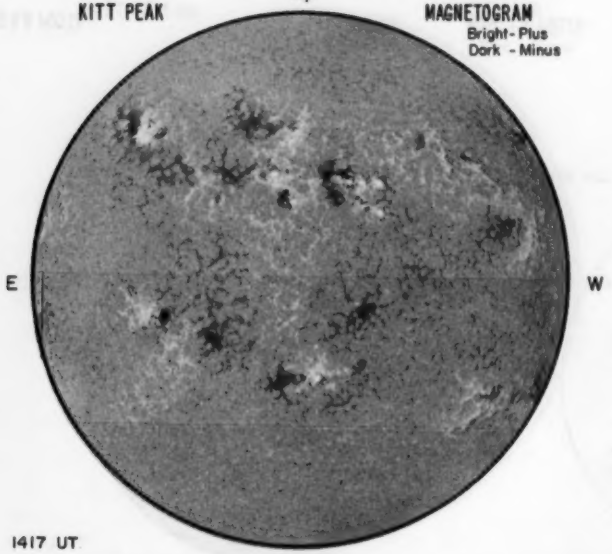
SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)



1809 UT

Sp

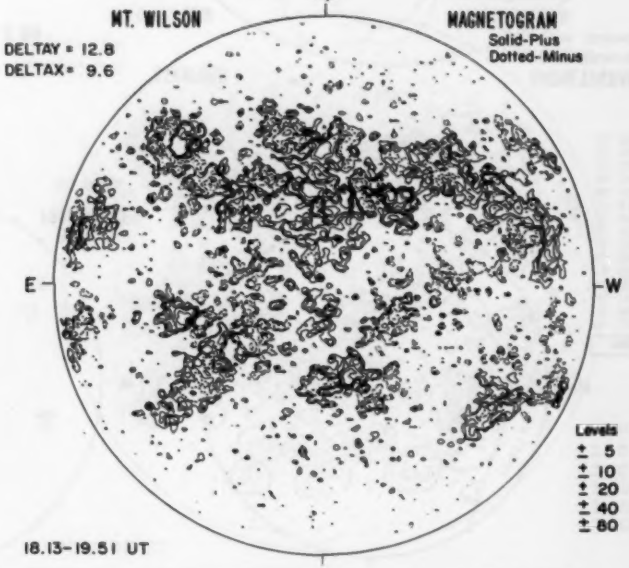
KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus



1417 UT

Sp

MT. WILSON Np MAGNETOGRAM
Solid-Plus
Dotted-Minus
DELTAY = 12.8
DELTAX = 9.6



18.13-19.51 UT

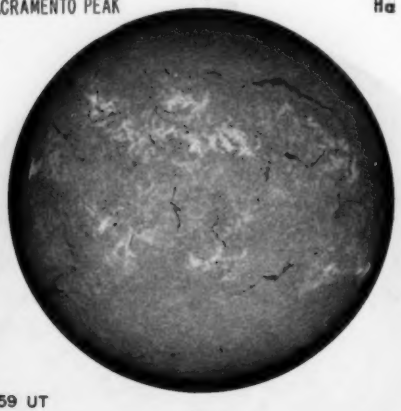
Sp

29

SACRAMENTO PEAK Np Hα SAN FERNANDO Np SUNSPOTS HALE OBSERVATORIES Np CALCIUM REPORT

29

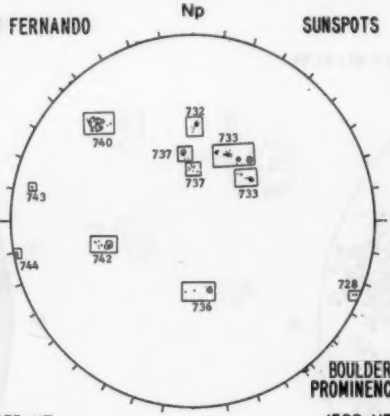
SACRAMENTO PEAK Np Hα



E W

1559 UT Sp

SAN FERNANDO Np SUNSPOTS



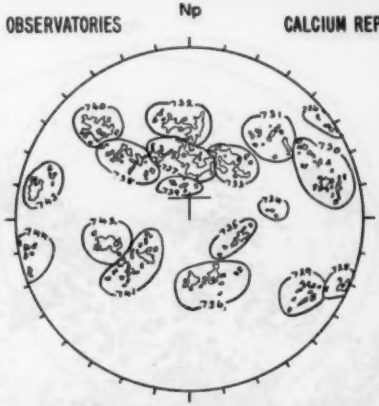
E W

1655 UT Sp

BOULDER PROMINENCES

1520 UT

HALE OBSERVATORIES Np



E W

2137 UT Sp

CALCIUM REPORT

FAIR	JA
28-	0400-3.5
29-	0800-3.0
30-	2300-3.0
31-	1100-2.5
32-	2500-3.0
33-	2300-4.0
34-	0200-2.5
35-	0700-3.0
36-	1700-3.0
37-	2900-3.5
38-	1600-3.0
40-	2200-3.5
41-	1900-3.0
42-	1800-3.5
43-	1700-3.5
44-	0900-2.5

NOSC LA POSTA Np 2.0 CM

NO DATA

E W

SCHEDULE

---- UT Sp Ant. Temp. Unit 100° K

NOSC LA POSTA Np 8.6 MM

NO DATA

E W

SCHEDULE

---- UT Sp Ant. Temp. Unit 100° K

STANFORD Np

MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus

E W

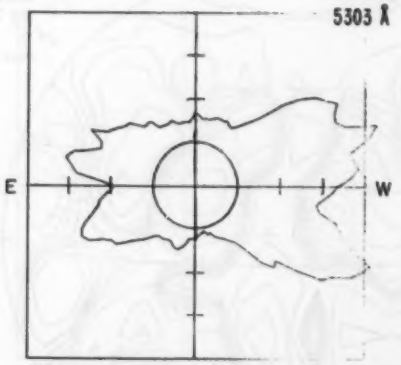
Levels
0 μT
± 50
±100
±200

1844 UT Sp

99
Mar 80

MARCH 30, 1980 (P = -26.11, B_o = -6.62, L_o = 212.85)

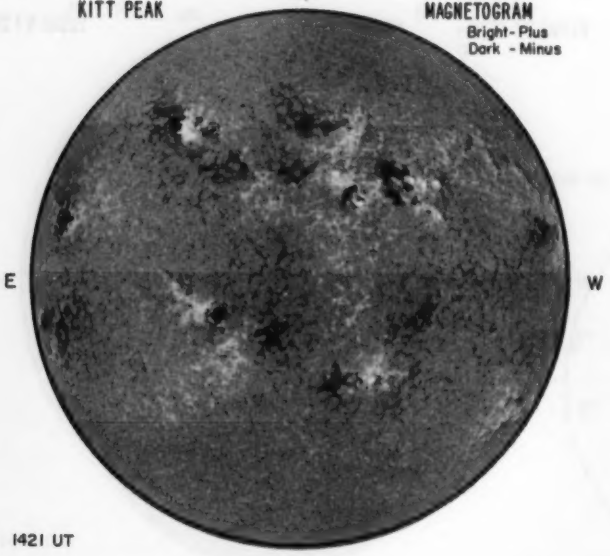
SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å



1502 UT

Sp

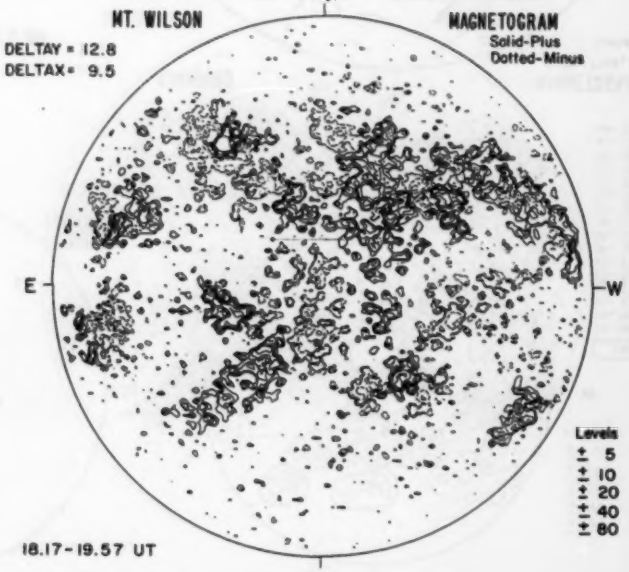
KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus



1421 UT

Sp

MT. WILSON Np MAGNETOGRAM
Solid-Plus
Dotted-Minus
DELTAY = 12.8
DELTAX = 9.5



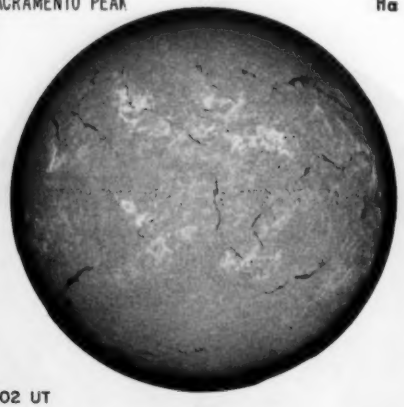
18.17-19.57 UT

Sp

30
SACRAMENTO PEAK Np Hα SAN FERNANDO Np SUNSPOTS HALE OBSERVATORIES Np CALCIUM REPORT

30

SACRAMENTO PEAK Np Hα

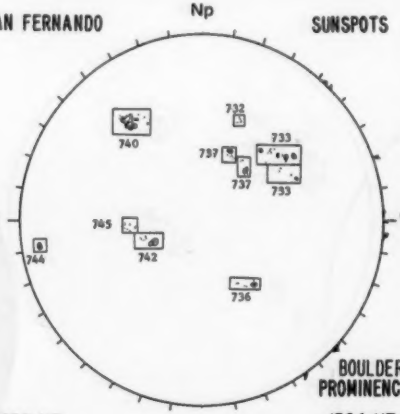


E W

1402 UT

Sp

SAN FERNANDO Np SUNSPOTS



E W

1650 UT

Sp

BOULDER PROMINENCES

1504 UT

HALE OBSERVATORIES Np CALCIUM REPORT

NO DATA

E W

Sp

NOSC LA POSTA Np 2.0 CM

NO DATA

E W

SCHEDULE

---- UT

Sp Ant. Temp. Unit 100° K

NOSC LA POSTA Np 8.6 MM

NO DATA

E W

SCHEDULE

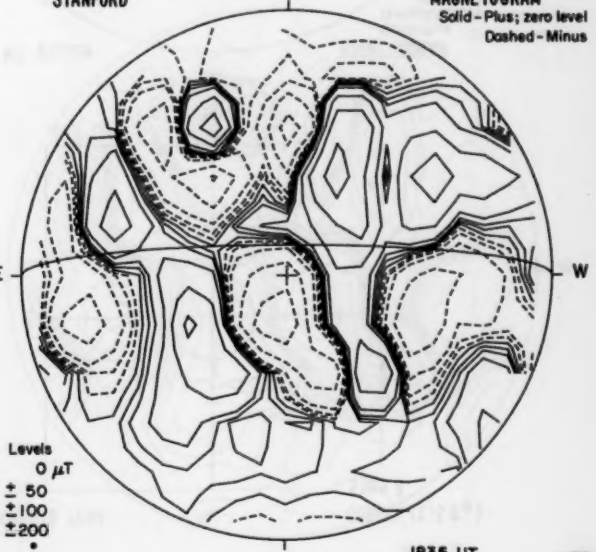
---- UT

Sp Ant. Temp. Unit 100° K

STANFORD Np MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



E W

Levels

0 μT

± 50

±100

±200

•

•

•

Sp

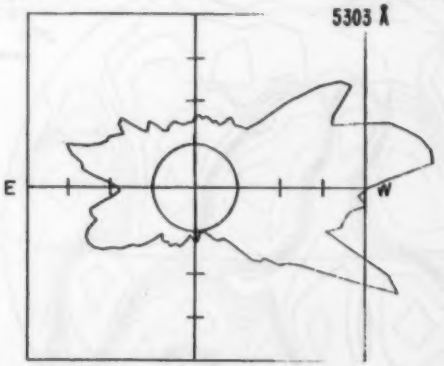
1835 UT

101

Mar 80

MARCH 31, 1980 (P=-26.17, B_o=-6.57, L_o=199.66)

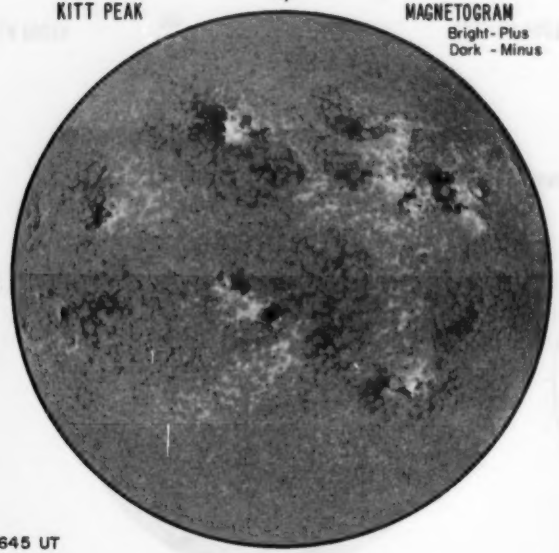
SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å



1532 UT

Sp

KITT PEAK Np MAGNETOGRAM
Bright-Plus
Dark - Minus

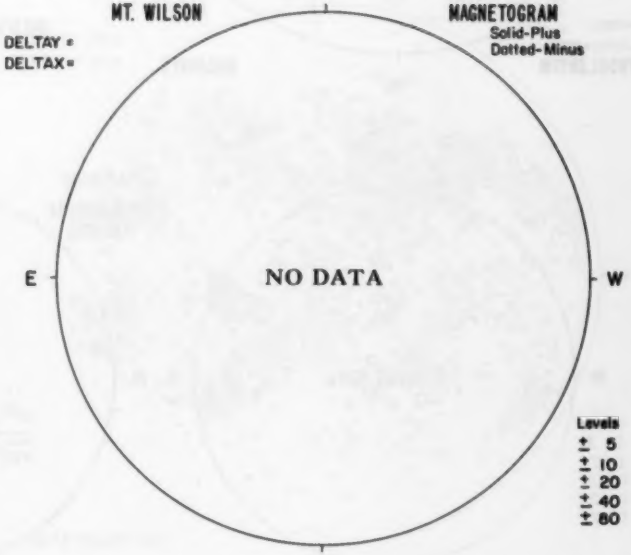


1645 UT

Sp

MT. WILSON Np MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY =
DELTAX=



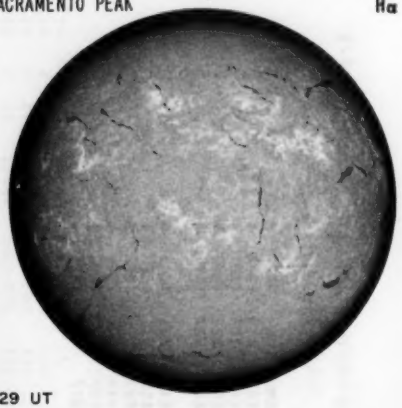
Levels
± 5
± 10
± 20
± 40
± 80

Sp

31

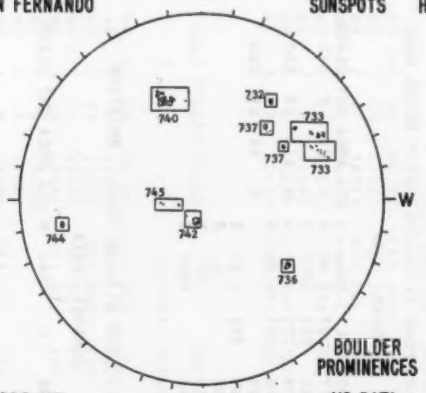
SACRAMENTO PEAK Np Hα SAN FERNANDO Np SUNSPOTS HALE OBSERVATORIES Np CALCIUM REPORT

SACRAMENTO PEAK Hα



1429 UT

SAN FERNANDO SUNSPOTS

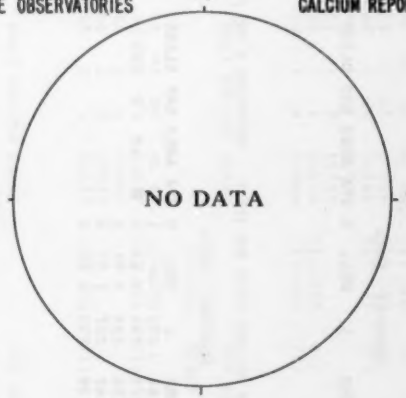


1725 UT

BOULDER PROMINENCES

NO DATA

HALE OBSERVATORIES CALCIUM REPORT

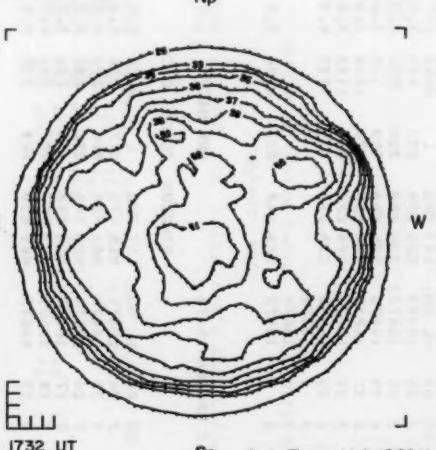


NOSC LA POSTA 2.0 CM

1706 UT

Ant. Temp. Unit 100° K

NOSC LA POSTA 8.6 MM

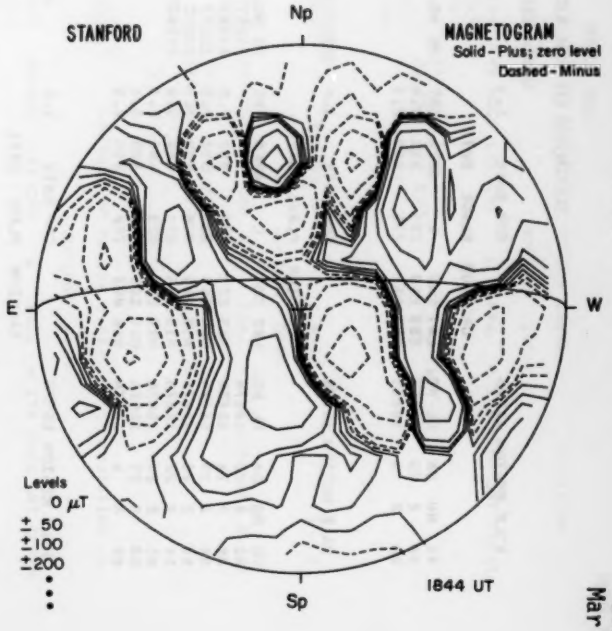


1732 UT

Ant. Temp. Unit 100° K

STANFORD MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus



1844 UT

REGIONS OF SOLAR ACTIVITY

MARCH 1980

HALE REGION 16685 CMP DATE 1.8

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT CLASS
80	2	29	16685	S09 E03	235	300	3.0								
80	3	4	16685	S07 W51	236	100	2.0								

HALE REGION 16674 CMP DATE 1.4 RETURN OF PART OF REGIONS 16633 AND 16627 ROTATIONS 2 AND 7

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT CLASS
80	2	23	16674					21257	N16 E80	238	AP	1			
80	2	24	16674	N15 E78	232	300	2.5	21257	N15 E78	234	(B)	3	R	40	2 CRO
80	2	25	16674	N15 E59	231	500	2.5	21257	N14 E56	236	(B)	2			
80	2	26	16674	N15 E49	228	400	3.0	21257	N15 E42	237	(B)	3			
80	2	27	16674	N15 E33	231	700	3.0	21257	N15 E29	236	(B)	2			
80	2	28	16674	N15 E21	229	400	3.0								
80	2	29	16674	N15 E08	230	300	3.0								
80	3	4	16674	N10 W43	228	300	2.0								

HALE REGION 16673 CMP DATE 1.5 RETURN OF NEW PLAGE IN TRAILING PART OF REGION 16630

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT CLASS
80	2	24	16673	S24 E69	233	700	3.0	21259	S24 E77	227	(B)	3	R	20	2 BXO
80	2	25	16673	S24 E60	238	900	4.0	21259	S25 E65	227	(BP)	3			
80	2	26	16673	S24 E48	229	900	3.0	21259	S24 E58	229	(B)	4	M	110	13 DSO
80	2	27	16673	S24 E36	228	1500	3.0	21259	S24 E38	227	(B)	3			
80	2	28	16673	S24 E23	227	1100	3.0		S24 E25				H	80	14 DSO
80	2	29	16673	S24 E09	229	1700	4.0	21259	S24 E09	229	(B)	3			
80	3	1	16673					21259	S25 W05		B	3			
80	3	2	16673					21259	S25 W15		BP	3			
80	3	4	16673	S24 W42	227	2100	3.5	21259	S26 W48		(BP)	3			

HALE REGION 16675 CMP DATE 1.5 RETURN OF TRAILING PORTION OF REGION 16627 ROTATION 7

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT CLASS
80	2	24	16675	N10 E75	227	200	2.0								
80	2	25	16675	N08 E64	226	300	2.5								
80	2	26	16675	N09 E46	231	300	3.0								
80	2	27	16675	N09 E38	226	200	3.0								
80	2	28	16675	N09 E23	227	200	2.5								
80	2	29	16675	N09 E10	228	200	2.5								

HALE REGION 16676 CMP DATE 1.9 RETURN OF LEADING PART OF REGION 16631 ROTATION 3

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT CLASS
80	2	24	16676	S13 E77	225	800	3.0	21258	S13 E85	219	(AP)	4			
80	2	25	16676	S15 E70	220	1500	3.0	21258	S13 E73	219	(AP)	3			
80	2	26	16676	S14 E58	219	1200	3.5	21258	S13 E57	222	(AP)	4			
80	2	27	16676	S14 E43	221	1500	3.5	21258	S14 E45	220	(AP)	4			
80	2	28	16676	S13 E28	222	1100	3.0								
80	2	29	16676	S13 E16	222	1900	3.5	21258	S13 E17	221	(BP)	4			
80	3	1	16676					21274	S09 E12		AF	1			
80	3	1	16676					21258	S13 E03		BP	3			
80	3	2	16676					21258	S13 W09		BP	4			
80	3	4	16676	S12 W37	222	1700	3.0	21258	S13 W37		(BP)	3			
80	3	7	16676					21298	S13 W77		AP	1			

HALE REGION 16692 CMP DATE 2.4

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT CLASS
80	3	4	16692	S23 W31	216	300	2.5								

MARCH 1980

HALE REGION 16684 CMP DATE 2.7 RETURN OF REGION 16631 ROTATION 3

				CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT		NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	2	28	16684	S17 E38	212	500	3.0										
80	2	29	16684	S17 E25	213	1000	3.5										
80	3	1	16684						21280	S15 E13		AP 2					
80	3	2	16684						21280	S15 E02		AP 2					
80	3	4	16684	S16 W27	212	800	3.5										
80	3	8	16684	S16 W79	210	200	2.0										

HALE REGION 16687 CMP DATE 2.7 RETURN OF REGION 16633 ROTATION 2

				CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT		NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	2	29	16687	N23 E24	214	300	3.0										
80	3	1	16687						21276	N24 E10		B 2					
80	3	2	16687						21276	N25 E02		B 2					
80	3	4	16687	N24 W26	211	500	3.5										

HALE REGION 16680 CMP DATE 3.2 RETURN OF REGION 16634 ROTATION 4

				CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT		NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	2	26	16680	N14 E73	204	1800	3.0										
80	2	27	16680	N14 E64	200	1900	3.5										
80	2	28	16680	N14 E46	204	1800	3.5										
80	2	29	16680	N14 E31	207	2300	3.0										
80	3	2	16680						21284	N13 E09		AP 2					
80	3	4	16680	N16 W20	205	2100	3.0										
80	3	8	16680	N16 W70	201	300	2.0										

HALE REGION 16681 CMP DATE 3.6 RETURN OF REGION 16640 ROTATION 2

				CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT		NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	2	26	16681	N03 E78	199	1000	3.0										
80	2	27	16681	N02 E65	199	2300	3.5										
80	2	28	16681	N05 E54	197	2300	3.5										
80	2	29	16681	N01 E39	199	2500	3.5										
80	3	1	16681						21265	N03 E21	203	AP 4					
80	3	2	16681						21265	N02 E09	203	AP 5					
80	3	4	16681	N02 W15	208	2500	3.0		21265	N02 W17	203	(AP) 4					
80	3	7	16681						21265	N02 W58	204	AP 2					
80	3	8	16681	N02 W64	195	1300	2.5		21265	N02 W71	204	(AP) 3	R	40	1	HSX
80	3	9	16681	N02 W78	197	200	2.5			N04 W74			H	50	1	HSX

HALE REGION 16689 CMP DATE 3.6

				CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT		NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	3	2	16689						21283	S10 E14		AP 2					
80	3	4	16689	S09 W15	200	200	2.5										
80	3	8	16689	S12 W60	191	100	2.0										
80	3	9	16689	S13 W71	190	100	1.5										

HALE REGION 16682 CMP DATE 3.9 RETURN OF TRAILING HALF OF REGION 16631 ROTATION 3

				CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT		NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	2	26	16682	S16 E73	199	700	2.5										
80	2	27	16682	S17 E62	202	1600	3.0										
80	2	28	16682	S19 E54	196	2200	3.5										
80	2	29	16682	S20 E42	196	2800	3.5										
80	3	1	16682						21266	S16 E20		AP 4					
80	3	2	16682						21266	S16 E09		AP 4					
80	3	2	16682						21286	S20 E23	189	AP 3					
80	3	4	16682	S19 W10	195	3400	3.5		21286	S19 W05	191	AP 2	H	10	6	DSO
80	3	4	16682						21266	S16 W16		(AP) 4					
80	3	5	16682							S18 W23			H	60	6	CAO
80	3	6	16682							S19 W37			H	50	6	CSO

CONTD

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HALE REGION 16682 (CONT)

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	3	7	16682					21286	S18 W38	184	B	3				
80	3	8	16682	S18 W61	192	2300	3.0	21294	S18 W62	195	(B)	3	R	60	3	CRO
80	3	9	16682	S16 W71	198	1400	3.0	21294	S18 W71	191	(BF)	3	H	60	5	CSO
80	3	10	16682						S19 W78				H	10	1	AXX

HALE REGION 16686 CMP DATE 4.2 RETURN OF REGION 16636 ROTATION 7

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	3	4	16686	N26 W07	192	600	2.5									
80	3	8	16686	N26 W50	181	400	2.5		N27 W50				R	10	2	AXX
80	3	9	16686	N28 W62	181	300	1.5									

HALE REGION 16683 CMP DATE 4.5

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	2	27	16683	N14 E72	192	2200	3.5									
80	2	28	16683	N12 E59	191	2200	4.0									
80	2	29	16683	N12 E46	192	4800	4.0									
80	3	1	16683					21276	N18 E37		AP	3				
80	3	2	16683					21278	N16 E26		AP	3				
80	3	2	16683					21285	N13 E18		AP	2				
80	3	4	16683	N14 W03	186	4500	4.0	21276	N18 W03		(B)	2				
80	3	4	16683					21287	N14 W08		(AF)	2				
80	3	7	16683					21278	N16 W42		BP	3				
80	3	8	16683	N15 W35	186	2300	3.5	21278	N17 W56		(BP)	3				
80	3	9	16683	N15 W70	189	1000	3.0	21278	N17 W70		(AP)	2				

HALE REGION 16691 CMP DATE 4.9 RETURN OF NORTHERN PART OF REGION 16638 ROTATION 4

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	3	4	16691	S12 E02	183	100	2.5									

HALE REGION 16690 CMP DATE 5.0

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	3	4	16690	S09 E04	181	100	2.5									

HALE REGION 16693 CMP DATE 5.0 RETURN OF SOUTHERN PART OF REGION 16638 ROTATION 4

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	3	4	16693	S23 E04	181	100	2.5									

HALE REGION 16694 CMP DATE 7.3 RETURN OF REGION 16641 ROTATION 2

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	3	1	16694					21281	N10 E70		AP	2				
80	3	2	16694					21281	N09 E58		AP	3				
80	3	4	16694	N11 E35	150	2200	3.5	21281	N10 E31		(AP)	2				
80	3	8	16694	N12 W13	150	1900	3.5									
80	3	9	16694	N13 W33	152	1400	3.0									
80	3	12	16694	N12 W66	145	400	2.0									
80	3	13	16694	N17 W76	139	200	1.5									

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HALE REGION 16695 CMP DATE 8.8 RETURN OF REGION 16639 ROTATION 2

			CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT CLASS
80	3	4	16695	N25 E46	133	1200	3.5								
80	3	6	16695	N26 W04	135	1000	3.0								
80	3	9	16695	N27 W17	136	700	3.5	21295	N28 W17	137	AP	1			
80	3	12	16695	N27 W54	133	200	3.0								
80	3	13	16695	N28 W70	133	200	1.5								

HALE REGION 16699 CMP DATE 8.5 RETURN OF REGIONS 16644 AND 16650 ROTATIONS 8 AND 4

			CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT CLASS
80	3	1	16699					21282	S10 E85	139	B	2			
80	3	2	16699					21282	S11 E74	138	BP	3			
80	3	4	16699	S12 E47	138	2500	3.0	21282	S11 E48	138	(BP)	5			
80	3	5	16699					21282	S10 E07	139	BP	5			
80	3	8	16699	S12 W04	135	2700	4.0	21282	S13 W04	137	(BP)	5	R	270	18 CKO
80	3	9	16699	S12 W19	137	2600	3.5	21282	S10 W16	136	(BP)	4	H	320	8 CHO
80	3		16699					21296	S16 W15	135	(AF)	2			

HALE REGION 16696 CMP DATE 9.0 RETURN OF NEW PLAGE IN LOCATION OF REGION 16645

			CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT CLASS
80	3	4	16696	N08 E56	129	600	4.0	21283	N03 E54		(AP)	3			
80	3	7	16696					21288	N11 E12		AP	2			
80	3	8	16696	N09 E03	128	900	3.5	21288	N11 W01		(AP)	3			
80	3	9	16696	N10 W11	130	800	3.5								
80	3	12	16696	N09 W47	126	500	3.0								
80	3	13	16696	N11 W65	128	400	2.0								
80	3	14	16696	N10 W78	129	200	1.5								

HALE REGION 16700 CMP DATE 9.6

			CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT CLASS
80	3	5	16700	N32 E11	120	100	2.0								
80	3	6	16700	N32 W02	121	100	2.0								

HALE REGION 16701 CMP DATE 10.1 RETURN OF REGION 16644 ROTATION 4

			CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT CLASS
80	3	5	16701	S19 E18	113	500	3.0								
80	3	9	16701	S19 E04	115	400	3.0	21297	S17 E06	114	AP	1			
80	3	12	16701	S18 W34	113	200	2.0								
80	3	13	16701	S18 W48	111	200	1.5								
80	3	14	16701	S19 W60	112	200	1.5								

HALE REGION 16697 CMP DATE 10.2

			CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT CLASS
80	3	4	16697	N17 E72	113	300	3.0								

HALE REGION 16698 CMP DATE 10.2

			CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT CLASS
80	3	4	16698	N11 E73	112	400	3.5	21289	N12 E80		AP	1			
80	3	6	16698	N12 E20	111	1100	4.5								
80	3	9	16698	N12 E06	113	900	3.0		N10 W01				H	10	2 BXO
80	3	12	16698	N12 W32	111	600	3.0								
80	3	13	16698	N13 W47	112	500	3.0	21302	N15 W41	108	(AP)	2			
80	3	14	16698	N14 W59	111	300	2.0								

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HALE REGION 16715 — CMP DATE 11.9

CALCIUM PLAGE DATA

YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT
80	3	13	16715	S25 W26	89	180	2.0
80	3	14	16715	S25 W36	88	100	2.0
80	3	15	16715				

SUNSPOT DATA

NN NO.	LAT CMD	L	MAG.	H STA	AREA	CNT	CLASS
21307	S25 W47	88	(AP)	2			

HALE REGION 16704 — CMP DATE 12.2

CALCIUM PLAGE DATA

YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT
80	3	9	16704	S17 E32	67	100	2.5
80	3	12	16704	S13 W07	86	200	2.5

SUNSPOT DATA

NN NO.	LAT CMD	L	MAG.	H STA	AREA	CNT	CLASS

HALE REGION 16702 — CMP DATE 12.5 — RETURN OF REGION 16652 — ROTATION 2

CALCIUM PLAGE DATA

YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT
80	3	7	16702				
80	3	8	16702	N16 E46	85	1200	3.5
80	3	9	16702	N16 E35	84	1100	3.0
80	3	10	16702				
80	3		16702				
80	3	11	16702				
80	3	12	16702	N16 W02	81	1100	3.0
80	3	13	16702	N17 W18	81	1200	3.0
80	3	14	16702	N17 W30	82	1200	3.0
80	3	15	16702				
80	3	16	16702	N17 W55	82	500	3.0
80	3	17	16702	N17 W67	77	300	2.0

SUNSPOT DATA

NN NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
21291	N14 E68	78	(B)	2				
21291	N14 E55	78	(B)	3	R	80	3	DSO
21291	N15 E43	77	(BP)	4	H	60	5	CSO
	N16 E35				H	40	2	CSO
	N15 E20				H	30	1	HSX
21291	N14 E11	83	(AP)	3	B	50	1	HRX
21291	N14 W02	82	(B)	4	B	20	1	HSX
21291	N14 W15	82	(BP)	3	B	30	1	HSX
21291	N14 W28	82	(AP)	3	B	10	2	AXX
21291	N14 W41	82	(B)	3	B	20	2	AXX

HALE REGION 16708 — CMP DATE 12.8 — RETURN OF REGION 16649 — ROTATIONS 6 AND 5

CALCIUM PLAGE DATA

YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT
80	3	8	16708	S18 E51	80	100	2.5
80	3	9	16708	S20 E40	79	300	1.5
80	3	12	16708	S18 E02	77	200	2.5
80	3	13	16708	S18 W14	77	100	1.5
80	3	14	16708	S19 W26	76	100	1.5

SUNSPOT DATA

NN NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS

HALE REGION 16720 — CMP DATE 13.4

CALCIUM PLAGE DATA

YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT
80	3	15	16720				
80	3	16	16720	S06 W44	71	200	3.0
80	3	17	16720	S06 W58	68	200	2.0

SUNSPOT DATA

NN NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
21309	S06 W29		(B)	3				

HALE REGION 16706 — CMP DATE 13.2 — RETURN OF REGION 16654 — ROTATION 2

CALCIUM PLAGE DATA

YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT
80	3	8	16706	S32 E64	67	500	3.5
80	3	9	16706	S32 E52	67	600	3.5
80	3	12	16706	S31 E14	65	500	3.0
80	3	13	16706	S30 W01	64	700	3.0
80	3	14	16706	S29 W11	63	600	3.0
80	3	16	16706	S30 W35	62	300	3.0
80	3	17	16706	S30 W50	60	200	2.5

SUNSPOT DATA

NN NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS

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HALE REGION 16705 CMP DATE 14.1 RETURN OF REGION 16651 ROTATIONS 6 AND 5

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	3	7	16705					21292	S16 E79	67	AP	2				
80	3	8	16705	S16 E66	65	1300	3.0	21292	S17 E69	64	(BP)	3	R	160	3	DSO
80	3	9	16705	S16 E56	63	1200	3.0	21292	S15 E56	64	(BP)	3	N	230	8	DSO
80	3	10	16705						S17 E38				M	100	8	CSO
80	3	11	16705					21292	S17 E30	64	(BP)	4	B	90	6	CSO
80	3	12	16705	S16 E17	62	2000	3.5	21232	S17 E16	64	(BP)	4	B	60	5	CSO
80	3	13	16705	S17 E03	60	2200	3.5	21292	S17 E01	66	(BP)	4	B	100	7	DSO
80	3	14	16705	S17 W09	61	1800	3.5	21292	S17 W13	67	(BP)	4	B	50	6	CSO
80	3	15	16705					21292	S17 W22	63	(B)	4	B	50	2	HSX
80	3	16	16705	S16 W32	59	2000	3.5	21292	S17 W35	63	(B)	3				
80	3	17	16705	S18 W47	57	1300	3.0	21292	S18 W50	64	(B)	2	B	10	2	BXO
80	3	19	16705					21325	S20 W67	55	(AP)	2	B	0	1	AXX

HALE REGION 16716 CMP DATE 14.3

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	3	13	16716	S09 E05	53	100	2.0									
80	3	14	16716	S08 W07	59	100	2.5									

HALE REGION 16709 CMP DATE 14.7

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	3	12	16709	N26 E26	53	400	1.5									
80	3	13	16709	N27 E11	52	300	2.0									
80	3	14	16709	N26 W01	53	200	3.0									

HALE REGION 16703 CMP DATE 14.8 RETURN OF REGION 16653 ROTATION 3

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	3	8	16703	N12 E75	56	900	2.5									
80	3	9	16703	N12 E66	53	1600	3.5									
80	3	12	16703	N13 E29	50	3300	3.5	21300	N14 E27	53	(AP)	2				
80	3		16703					21301	N13 E30	50	(AP)	2				
80	3	13	16703	N14 E12	51	3600	3.5	21300	N14 E15	52	(AP)	2				
80	3	14	16703	N14 W01	53	3800	3.5	21300	N16 W01	55	(AP)	3				
80	3	15	16703					21310	N18 W22	63	B	1				
80	3		16703					21311	N12 W12	53	(AP)	2				
80	3		16703					21312	N13 W15	56	AP	1	B	10	1	AXX
80	3		16703					21314	N14 W03	44	AP	1				
80	3	16	16703	N14 W25	52	2700	3.5	21310	N17 W34	62	(AP)	2	M	10	1	AXX

HALE REGION 16707 CMP DATE 15.6 RETURN OF REGION 16655 ROTATIONS 4 AND 3

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	3	9	16707	S16 E75	44	900	3.0	21290	S14 E78	42	(AP)	3				
80	3	10	16707						S12 E60				M	70	6	CRO
80	3	11	16707					21298	S12 E50	44	(B)	2	B	60	4	CRO
80	3	12	16707	S16 E39	41	2300	3.0	21298	S12 E38	42	(B)	2	B	10	4	BXO
80	3	13	16707	S15 E23	40	2400	3.5	21298	S12 E25	42	(B)	3				

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HALE REGION 16707 (CONT)

				CALCIUM	PLAGE	DATA			SUNSPOT	DATA						
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	NM NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	3	14	16707	S15 E11	41	1900	3.5	21298	S13 E06	46	(AP)	2				
80	3	15	16707					21298	S11 W02	43	(AP)	2	B	10	1	AXX
80	3		16707					21313	S22 E02	39	(AP)	3	B	10	2	AXX
80	3	16	16707	S15 W15	42	1800	3.5									
80	3	17	16707	S15 W30	40	1500	3.0	21313	S21 W26	48	AP	1				
80	3	18	16707						S18 W39				B	20	1	HSX
80	3	19	16707					21313	S22 W52	48	(BY)	4	B	60	7	OSO
80	3	20	16707					21313	S21 W64	48	(AP)	4	B	70	2	HSX
80	3	21	16707						S17 W80				B	40	1	HSX

HALE REGION 16710 CMP DATE 15.9

				CALCIUM	PLAGE	DATA			SUNSPOT	DATA						
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	NM NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	3	12	16710	N24 E43	36	600	3.0									
80	3	13	16710	N23 E26	37	700	2.0									
80	3	14	16710	N24 E15	37	700	3.0									
80	3	16	16710	N23 W11	38	500	3.0									
80	3	17	16710	N23 W25	35	500	2.5									

HALE REGION 16713 CMP DATE 16.6

				CALCIUM	PLAGE	DATA			SUNSPOT	DATA						
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	NM NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	3	11	16713					21299	S11 E61	33	(AP)	2	B	20	2	AXX
80	3	12	16713	S13 E52	27	1100	3.5	21299	S11 E49	31	(AP)	3	B	10	1	AXX
80	3	13	16713	S11 E35	28	1300	3.5	21299	S11 E36	31	(AP)	2	B	10	2	HSX
80	3	14	16713	S11 E24	28	1200	3.5	21299	S12 E23	31	(AP)	3				
80	3	15	16713					21299	S12 E11	30	(AP)	2	B	10	1	AXX
80	3	16	16713	S10 W02	29	700	3.5									
80	3	17	16713	S11 W16	26	800	3.0	21318	S12 W16	38	(BP)	2				

HALE REGION 16711 CMP DATE 16.8

				CALCIUM	PLAGE	DATA			SUNSPOT	DATA						
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	NM NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	3	12	16711	N17 E53	26	300	3.0									
80	3	13	16711	N18 E37	26	800	3.5	21303	N18 E42	25	(B)	3	B	0	1	AXX
80	3	14	16711	N19 E25	27	400	2.5	21303	N18 E28	26	(BF)	3	B	10	1	AXX
80	3	15	16711					21303	N19 E16	25	(BF)	3	B	40	1	HSX
80	3	16	16711	N18 E01	26	400	3.0									
80	3	17	16711	N19 W14	24	200	2.5									

HALE REGION 16712 CMP DATE 16.8

				CALCIUM	PLAGE	DATA			SUNSPOT	DATA						
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	NM NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	3	12	16712	N12 E55	24	500	3.0									
80	3	13	16712	N12 E39	25	700	3.5									
80	3	14	16712	N14 E26	26	600	3.5									
80	3	16	16712	N14 E01	26	500	3.0									
80	3	17	16712	N14 W14	24	500	2.5									

HALE REGION 16714 CMP DATE 17.2

				CALCIUM	PLAGE	DATA			SUNSPOT	DATA						
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	NM NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	3	12	16714	S23 E57	22	1400	3.0									
80	3	13	16714	S23 E42	21	2400	3.5									
80	3	14	16714	S23 E32	20	2700	3.0	21305	S22 E31	23	(AF)	2				
80	3		16714					21306	S25 E40	14	(AF)	2				
80	3	15	16714					21315	S23 E12	29	(AP)	2				
80	3	16	16714	S22 E06	21	2600	3.0									
80	3	17	16714	S22 W07	17	2500	3.0	21319	S22 W04	18	B	1				
80	3	20	16714						S21 W45				B	0	1	AXX
80	3	22	16714						S18 W61				R	10	1	AXX

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HALE REGION 16721 CMP DATE 19.9

CALCIUM PLAGE DATA

YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT
80	3	16	16721	S26 E42	346	400	3.0
80	3	17	16721	S26 E27	344	600	3.0
80	3		16721				
80	3		16721				
80	3	18	16721				
80	3		16721				
80	3	19	16721				
80	3	20	16721				
80	3	22	16721				
80	3	23	16721	S26 W50	345	1400	3.5
80	3	24	16721				
80	3	25	16721				
80	3	26	16721	S28 W82	336	400	2.5

SUNSPOT DATA

NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
21316	S26 E43	346	(8)	3	H	20	4	CSO
21316	S22 E32	343	(8)	2	B	10	2	BXO
21320	S23 E14		0 (AP)	1				
21321	S26 E28	347	(8)	3	B	40	6	CSO
	S22 E12				B	120	5	ESO
	S25 E12				B	80	19	ESI
21321	S26 E01	347	(BY)	4	B	250	24	ESI
21321	S26 W06	344	(BY)	5	B	260	33	ESI
21321	S27 W35	344	(0)	4	R	270	18	FAI
21321	S27 W41	337	(BP)	4	H	210	14	FSI
21321	S27 W57	340	(8)	4	B	100	8	ESO
21321	S27 W70	340	8	3	B	20	4	BXO

HALE REGION 16717 CMP DATE 20.3

CALCIUM PLAGE DATA

YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT
80	3	13	16717	S23 E78	346	300	2.0
80	3	14	16717	S23 E72	341	500	2.5
80	3	15	16717				
80	3	16	16717	S22 E46	342	1400	3.5
80	3	17	16717	S22 E32	339	1300	3.5
80	3	21	16717				
80	3		16717				

SUNSPOT DATA

NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
21304	S21 E85	343	(X)	1				
21304	S21 E70	345	(AP)	3	B	0	1	AXX
21304	S22 E64	338	(8)	2				
	S20 W21				B	0	2	BXO
	S25 W21				B	220	23	FAC

HALE REGION 16719 CMP DATE 20.7

CALCIUM PLAGE DATA

YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT
80	3	14	16719	S04 E73	335	100	2.0
80	3	16	16719	S03 E54	334	800	3.5
80	3	17	16719	S03 E38	333	700	3.5
80	3	23	16719	S03 W40	335	200	3.0

SUNSPOT DATA

NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
	S02 E53				H	10	1	AXX

HALE REGION 16722 CMP DATE 21.4

CALCIUM PLAGE DATA

YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT
80	3	16	16722	S17 E57	331	100	2.0
80	3	17	16722	S17 E46	325	200	2.5
80	3	21	16722				

SUNSPOT DATA

NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
21322	S20 E48	327	(AF)	1				
	S19 W09				B	0	3	BXO

HALE REGION 16718 CMP DATE 21.6 RETURN OF REGION 16659 ROTATION 3

CALCIUM PLAGE DATA

YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT
80	3	14	16718	S13 E76	335	100	1.5
80	3	15	16718				
80	3	16	16718	S07 E60	328	900	3.5
80	3	17	16718	S06 E48	323	1400	3.5
80	3	21	16718				
80	3	23	16718	S09 W28	323	800	3.0
80	3	26	16718	S12 W69	323	600	2.0

SUNSPOT DATA

NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
21306	S02 E69		(8)	2				
21309	S06 E66	323	(AP)	2				
21306	S03 E43		(8)	2				
	S08 W06				B	0	1	AXX

HALE REGION 16724 CMP DATE 22.1 RETURN OF REGION 16660 ROTATION 2

CALCIUM PLAGE DATA

YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT
80	3	16	16724	N10 E68	320	300	1.5
80	3	17	16724	N09 E54	317	500	2.5
80	3	23	16724	N10 W21	316	200	2.0

SUNSPOT DATA

NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS

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HALE REGION 16723 CMP DATE 22.4

CALCIUM PLAGE DATA

YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT
80	3	16	16723	N17 E71	317	300	3.0
80	3	17	16723	N17 E58	313	500	3.5
80	3	23	16723	N17 W17	312	300	2.0

SUNSPOT DATA

MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS

HALE REGION 16725 CMP DATE 23.0

CALCIUM PLAGE DATA

YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT
80	3	16	16725	S24 E78	310	500	3.0
80	3	17	16725	S24 E70	301	1300	3.5
80	3	18	16725				
80	3	19	16725				
80	3	20	16725				
80	3	21	16725				
80	3	22	16725				
80	3		16725				
80	3	23	16725	S24 W09	304	900	3.0
80	3	24	16725				
80	3	26	16725	S25 W49	303	1000	3.0

SUNSPOT DATA

MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
	S26 E85				H	20	1	AXX
21323	S25 E71	304	(AF)	2	B	10	1	HSX
	S25 E63				B	50	2	CSO
21323	S24 E49	299	(AF)	3	B	60	5	DRO
21323	S26 E35	301	(AF)	3	B	20	11	BAI
	S25 E21				B	10	2	BXO
21323	S26 E12	297	(AP)	3	R	10	5	BXO
21330	S22 E03	306	AP	1				
21323	S26 E04	292	(BY)	4	H	10	2	BXO
21323	S27 W13	296	(B)	3	B	20	1	HSX

HALE REGION 16727 CMP DATE 23.5

CALCIUM PLAGE DATA

YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT
80	3	17	16727	N15 E75	296	300	2.5
80	3	19	16727				
80	3	20	16727				
80	3	22	16727				
80	3	23	16727	N14 W03	298	700	3.0
80	3	24	16727				
80	3	25	16727				
80	3	26	16727	N13 W45	299	1200	3.0
80	3	27	16727				

SUNSPOT DATA

MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
21324	N14 E80	295	(X)	1				
21324	N15 E47	301	(B)	2				
21324	N14 E40	296	(B)	2				
21324	N13 E12	297	(AP)	2				
21324	N12 E00	296	(B)	3	H	0	1	AXX
21324	N13 W14	297	(D)	4	B	60	11	DAI
21324	N13 W28	296	(BP)	4	B	30	7	CPI
21324	N13 W42	299	(B)	4	B	10	2	BXO
21324	N13 W56	300	(B)	4	R	50	54	DRO

HALE REGION 16728 CMP DATE 24.2

CALCIUM PLAGE DATA

YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT
80	3	22	16728				
80	3	22	16728				
80	3	23	16728	S24 E07	286	1100	3.0
80	3	25	16728				
80	3	26	16728	S25 W32	286	1900	3.0
80	3	27	16728				
80	3	28	16728	S25 W63	292	2000	3.0
80	3	29	16728	S25 W75	289	400	3.5

SUNSPOT DATA

MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
21331	S27 E19	230	(AF)	3	R	10	1	AXX
21332	S21 E21	268	AP	1				
21340	S28 W20	290	B	2	B	40	10	CRO
21340	S27 W33	290	(B)	4	B	10	3	BXO
21340	S27 W47	291	(BP)	4	R	30	7	BXO
21340	S24 W64	294	(B)	4				
21340	S26 W77	294	(BY)	2	B	20	3	BXO

HALE REGION 16726 CMP DATE 24.5 RETURN OF REGION 16601 ROTATION 5

CALCIUM PLAGE DATA

YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT
80	3	17	16726	N23 E76	293	200	2.0
80	3	18	16726				
80	3	19	16726				
80	3	20	16726				
80	3	20	16726				
80	3	21	16726				
80	3	22	16726				
80	3	23	16726	N24 E11	284	1200	3.0
80	3		16726				
80	3	24	16726				
80	3	26	16726	N25 W30	284	900	3.0
80	3	28	16726	N33 W46	275	100	3.0
80	3	29	16726	N30 W68	282	400	2.0

SUNSPOT DATA

MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
	N25 E68				B	90	1	HSX
21326	N26 E55	293	(AP)	3	B	40	1	HSX
21326	N25 E46	290	(AP)	4				
21329	N24 E57		AP	1				
	N26 E29				B	50	2	HSX
21326	N25 E18	291	(AP)	4	R	70	2	HAX
21326	N25 E06	290	(AP)	4	H	40	1	HSX
21335	N27 E19	277	B	2				
21326	N25 W07	290	(AP)	4	B	10	1	AXX

REGIONS OF SOLAR ACTIVITY

MARCH 1980

HALE REGION 16729 CMP DATE 25.8

			CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	3	20	16729					21328	S28 E63	273	(AP)	2	B	0	1	AXX
80	3	22	16729					21328	S29 E43	266	(BF)	3				
80	3	23	16729	S30 E22	273	1300	3.0	21328	S28 E31	265	(BP)	4	H	20	4	BXO
80	3	24	16729					21328	S27 E17	266	(BP)	4	B	40	5	CSO
80	3	25	16729					21328	S26 E02	268	(BP)	4	B	30	3	HAX
80	3	26	16729	S30 W15	269	2300	3.0	21328	S29 W12	269	(BF)	3	B	20	2	CSO
80	3	27	16729					21328	S28 W25	269	(BF)	3	R	60	6	CAO
80	3	28	16729	S30 W37	266	1300	3.0	21328	S27 W39	269	(BP)	4				
80	3	29	16729	S30 W50	264	800	3.0									

HALE REGION 16730 CMP DATE 25.8 RETURN OF REGIONS 16667 AND 16671 ROTATIONS 3 AND 3

			CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	3	19	16730					21327	N07 E75	273	(AP)	3				
80	3	20	16730					21327	N04 E66	270	(AP)	4				
80	3	22	16730					21327	N04 E37	272	(AP)	5				
80	3	23	16730	N05 E28	267	2600	3.0	21327	N05 E25	271	(AP)	5	H	170	4	DSO
80	3	24	16730					21327	N06 E11	272	(AP)	5	B	70	10	DSI
80	3	25	16730					21327	N05 W03	273	(AP)	5	B	60	8	CAO
80	3		16730					21341	N06 E06	264	(BF)	3				
80	3	26	16730	N08 W15	269	2500	3.0	21327	N06 W16	273	(AP)	4	B	40	3	CXO
80	3		16730					21341	N06 W08	265	AP	2				
80	3	27	16730					21327	N06 W30	274	(AP)	4	R	50	7	CRO
80	3	28	16730	N10 W35	264	2200	3.0	21327	N07 W44	274	(B)	4				
80	3	29	16730	N10 W50	264	2300	3.0	21327	N08 W50	267	AP	1				
80	3		16730					21346	N18 W44	261	B	1				

HALE REGION 16734 CMP DATE 27.7

			CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	3	23	16734	S03 E53	242	100	2.0									
80	3	26	16734	S03 E10	244	200	2.5									
80	3	28	16734	S04 W14	243	300	2.0									
80	3	29	16734	S04 W28	242	200	2.5									
80	4	1	16734	S03 W67		100	2.0									

HALE REGION 16731 CMP DATE 27.8 RETURN OF REGION 16670 ROTATIONS 8 AND 5

			CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	3	22	16731					21334	N22 E64	245	(BF)	3				
80	3	23	16731	N22 E48	247	600	3.0	21334	N22 E51	245	(B)	4	H	60	2	DSO
80	3	24	16731					21334	N22 E38	245	(BF)	4	B	50	2	CSO
80	3	25	16731					21334	N22 E22	248	(AF)	3	B	30	1	HAX
80	3	26	16731	N20 E12	242	800	3.0	21334	N22 E13	244	AP	2				
80	3	28	16731	N20 W15	244	1000	2.5									
80	3	29	16731	N21 W30	244	1100	2.5									

HALE REGION 16733 CMP DATE 28.8 RETURN OF NEW PLAGE IN LOCATION OF REGIONS 16674 AND 16675

			CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	3	23	16733	N08 E73	222	300	2.5	21337	N06 E74	222	(AF)	3				
80	3	24	16733					21337	N08 E58	225	(BP)	4	B	40	3	CRO
80	3	25	16733					21337	N09 E43	227	(BP)	3	B	10	3	BXO
80	3		16733					21342	N15 E42	226	(BP)	4	B	40	9	BXO
80	3	26	16733	N11 E25	223	2000	3.0	21337	N10 E31	226	(BP)	4	B	40	11	DRI
80	3		16733					21342	N14 E26	229	(BP)	4	B	120	16	DSO
80	3	27	16733					21337	N10 E17	227	(BP)	4	R	90	31	CRI
80	3		16733					21342	N13 E16	228	(BP)	5	R	180	15	DSO
80	3	28	16733	N11 E01	224	2200	3.0	21337	N06 W01	231	(AP)	5				
80	3		16733					21342	N15 E03	227	(BP)	5				
80	3	29	16733	N12 W13	227	2300	4.0	21337	N07 W15	232	(AP)	4	B	50	2	DSO
80	3		16733					21342	N14 W10	227	(B)	4	B	170	10	ESI
80	3	30	16733					21337	N08 W28	232	(BY)	4				
80	3		16733					21342	N15 W24	226	(BP)	5	R	180	24	EAI
80	3	31	16733					21337	N10 W39	231	(B)	3	R	60	11	CRI
80	3		16733					21342	N15 W37	229	(BP)	4	R	120	16	ESO

CONTD

HALE REGION 16733 (CONT)

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	4	1	16733	N12 W57		2000	3.0	21337	N10 W55		B	3	B	100	14	D
80	4	1	16733					21342	N14 W56		AP	3	B	200	6	F
80	4	2	16733						N08 W74				B	80	7	C
80	4	2	16733						N13 W72				B	80	5	C
80	4	3	16733					21337	N09 W68		(X)	1	B	20	4	B
80	4	3	16733					21342	N15 W78		AP	1	B	20	1	A
80	4	4	16733					21342	N15 W88		(X)	1				

HALE REGION 16735 CMP DATE 28.8 RETURN OF REGION 16676 ROTATION 4

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	3	23	16735	S15 E67	228	500	2.0									
80	3	26	16735	S15 E29	225	500	2.5									
80	3	27	16735						S17 E20				R	20	3	BXO
80	3	28	16735	S15 E01	228	1000	3.0									
80	3	29	16735	S14 W14	228	700	3.0									
80	4	1	16735	S14 W57		400	3.0									
80	4	3	16735	S14 W79		200	2.5									

HALE REGION 16736 CMP DATE 29.1 RETURN OF REGION 16673 ROTATION 2

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	3	22	16736					21333	S28 E85	224	AF	2				
80	3	23	16736	S28 E77	218	900	3.0	21333	S28 E72	224	(AF)	5	H	140	3	DSO
80	3	24	16736					21333	S27 E62	221	(BP)	4	B	140	6	DSO
80	3	25	16736					21333	S27 E51	219	(B)	5	B	210	10	DAO
80	3	26	16736	S27 E31	223	1500	3.0	21333	S27 E37	220	(B)	5	B	150	11	DSO
80	3	27	16736					21333	S28 E26	218	(B)	5	R	180	19	DAO
80	3	28	16736	S29 E05	224	2000	3.0	21333	S28 E12	218	(BP)	5				
80	3	29	16736	S29 W10	224	1700	3.0	21333	S28 E00	217	(BP)	4	B	100	7	CSO
80	3	30	16736					21333	S28 W15	219	(BP)	4	R	70	8	CSO
80	3	31	16736					21333	S27 W30	222	(D)	3	R	120	5	HAX
80	4	1	16736	S27 W45		1200	3.0	21333	S27 W43		AP	3	B	80	8	C
80	4	2	16736						S28 W61				B	60	1	H
80	4	3	16736	S27 W66		800	3.0	21333	S26 W70		(AF)	3	B	30	1	H

HALE REGION 16737 CMP DATE 30.1 RETURN OF REGION 16680 ROTATION 5

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	3	24	16737					21338	N15 E70	213	(AP)	5	B	60	2	HAX
80	3		16737					21339	N10 E70	213	(AP)	3				
80	3	25	16737					21338	N16 E59	211	(BP)	5	B	80	7	CSO
80	3		16737					21339	N10 E56	214	(AP)	4	B	0	1	AXX
80	3	26	16737	N15 E41	213	2700	3.5	21338	N15 E45	212	(AP)	5	B	60	11	CSI
80	3		16737					21339	N10 E42	215	(AP)	3				
80	3	27	16737					21338	N17 E32	212	(AP)	5	R	140	82	DSI
80	3		16737					21339	N10 E28	216	(AP)	3				
80	3	28	16737	N15 E18	211	2700	3.5	21338	N16 E19	211	(AP)	5	H	150	7	CSO
80	3		16737					21339	N09 E16	214	(B)	4				
80	3	29	16737	N14 E03	211	2900	3.5	21338	N16 E06	211	(BP)	4				
80	3		16737					21339	N13 E03	214	(B)	3	B	60	5	CAO
80	3	30	16737					21338	N15 W07	211	(AP)	4	R	160	10	DAO
80	3		16737					21339	N10 W12	216	(BP)	4	R	90	9	DAO
80	3	31	16737					21338	N16 W20	212	(AP)	4	R	60	3	CSO
80	3		16737					21339	N10 W26	218	(AP)	3	R	10	1	AXX
80	4	1	16737	N14 W36		1300	3.0	21338	N15 W34		AP	4	B	30	6	D
80	4	1	16737					21339	N10 W41		AP	3				
80	4	2	16737						N13 W56				B	360	8	F
80	4	3	16737	N14 W69		1000	3.0	21338	N17 W61		(BP)	3	B	90	7	C
80	4	3	16737					21339	N11 W70		(AP)	2				

HALE REGION 16739 CMP DATE 30.1 RETURN OF LEADING PORTION OF REGION 16681 ROTATION 3

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	3	26	16739	N03 E43	211	400	2.5									
80	3	27	16739						N09 E30				R	30	5	CRO
80	3	28	16739	N04 E18	211	400	1.5									

CONTD

HALE REGION 16735 (CONT)

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	3	29	16739	N04 E03	211	300	2.0									
80	4	1	16739	N05 W35		200	1.5									
80	4	3	16739	N05 W63		100	1.5									

HALE REGION 16732 CMP DATE 30.2

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	3	23	16732	N23 E75	220	500	3.0	21336	N23 E77	219	(AP)	4				
80	3	24	16732					21336	N23 E64	219	(AP)	5	B	120	3	CAO
80	3	25	16732					21336	N24 E52	218	(AP)	5	B	190	1	HKX
80	3	26	16732	N24 E40	214	3100	3.5	21336	N24 E39	218	(AP)	5	B	110	6	CAO
80	3	27	16732					21336	N24 E28	216	(AP)	4	R	190	13	DAI
80	3	28	16732	N25 E20	209	2500	3.5	21336	N25 E15	225	(AP)	5				
80	3	29	16732	N25 E04	210	2500	3.0	21336	N23 E02	215	(AP)	3	B	50	4	CAO
80	3		16732					21348	N28 E08	209	(AP)	2				
80	3	30	16732					21336	N24 W11	215	(AP)	3	R	20	14	BXO
80	3	31	16732					21336	N24 W24	216	(AP)	3	R	20	5	BXO
80	4	1	16732	N25 W37		1500	3.0	21336	N25 W37		AP	2	B	20	3	B
80	4	2	16732						N25 W57				B	10	1	A
80	4	3	16732	N26 W60		1100	3.0		N25 W70				B	20	2	B

HALE REGION 16741 CMP DATE 31.4 RETURN OF REGION 16682 ROTATION 4

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	3	26	16741	S17 E57	197	1500	3.0									
80	3	28	16741	S18 E32	197	2200	3.0									
80	3	29	16741	S19 E20	194	1900	3.0	21347	S20 E18	199	(AP)	2				
80	3		16741					21349	S21 E28	189	B	1				
80	4	1	16741	S21 W19		1500	3.0									
80	4	3	16741	S21 W42		1300	3.0									
80	4	6	16741	S22 W55		200	2.5									

HALE REGION 16738 CMP DATE 31.6 RETURN OF REGION 16683 ROTATION 2

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	3	26	16738	N14 E61	193	600	3.5									
80	3	28	16738	N14 E38	191	1600	3.5									
80	3	29	16738	N14 E22	192	1600	3.0									
80	4	1	16738	N16 W16		700	2.5									
80	4	3	16738	N16 W42		800	2.5									

NOTE: NO CALCIUM SPECTROHELIOGRAMS WERE SECURED AT THE MT. WILSON OBSERVATORY ON MARCH 1-3, 5-7, 10, 11, 15, 18-22, 24, 25, 27, 30 AND 31, 1980.
NO SUNSPOT OBSERVATIONS WERE MADE AT MT. WILSON ON MARCH 3, 5, 6, 10, 18 AND 21, 1980.

REMARKS

A.) REGION 16674 IS THE RETURN OF THE TRAILING PORTION OF REGION 16627 AND THE LEADING PORTION OF REGION 16633.
B.) THE LEADING PORTION OF REGION 16676 IS NEW; THE TRAILING PORTION IS THE RETURN OF THE LEADING PART OF REGION 16631.
C.) REGION 16699 IS THE RETURN OF THE LEADING HALF OF REGION 16644 AND ALL OF REGION 16650.
D.) REGION 16701 IS THE RETURN OF THE TRAILING PORTION OF REGION 16644.
E.) REGION 16721 IS A NEW PLAGE IN THE LOCATION OF THE RETURN OF THE TRAILING PART OF REGION 16658.
F.) REGION 16725 IS A NEW PLAGE IN THE LOCATION OF THE RETURN OF REGION 16663.

CONTIGUOUS PLAGES, MARCH 1980 --- NONE

DAILY CALCIUM PLAGE INDEX

MARCH 1980

YR	MO	DAY	INDEX	YR	MO	DAY	INDEX	YR	MO	DAY	INDEX
80	3	1	*	80	3	11	*	80	3	21	*
80	3	2	*	80	3	12	41.1	80	3	22	*
80	3	3	*	80	3	13	49.8	80	3	23	29.4
80	3	4	74.9	80	3	14	46.2	80	3	24	*
80	3	5	*	80	3	15	*	80	3	25	*
80	3	6	*	80	3	16	42.8	80	3	26	56.2
80	3	7	*	80	3	17	37.2	80	3	27	*
80	3	8	42.5	80	3	18	*	80	3	28	63.2
80	3	9	31.6	80	3	19	*	80	3	29	64.5
80	3	10	*	80	3	20	*	80	3	30	*
								80	3	31	*

* NO OBSERVATIONS

SUDDEN IONOSPHERIC DISTURBANCES

MARCH 1980

DAY	UNIVERSAL TIME START	END	MAX	IMP	WIDE SPREAD INDEX	NUMBER OF STATION REPORTS BY TYPE SWF	SCNA	SEA	SPA	LF-SPA	SES	SFD	KNOWN FLARE	HALE REGION
01	1140	1228	1209	1	3				2				*	
02	0239	0412	0243	1-	1					1			0237	16680
02	0305	0346	0315	1-	3					2			0305E	16687
02	1636	1654	1640	1+	3	1						4	1634	NO DATA
02	1905	2000	1910	1-	3							3	1903	NO DATA
04	0120	0155	0126	1-	3					3			*	
04	0258	0322	0306	1-	3					3			*	
04	0340	0502	0400	1-	3					2			0337E	16673
04	0415	0453	0422	1	3					2			*	
04	0745	0820	0751	1-	5	1				2	1		*	
04	1019	1035	1025	1	5	1			2	1	1	1	*	
04	1045	1055	1048	1-	3	1			1		1		*	
04	1501	1517	1506	1-	3				1		1	1	*	
04	2233	2345	2248	1	5					2		1	2238	NO DATA
05	0128	0200	0137	1-	3					2			*	
05	0738	0820	0749	1-	3					2			*	
05	1433	1510	1456	1	3				2				1438	16699
05	2328	0002	2337	1-	3					2			*	
06	0217	0240	0221	1-	3					3			*	
06	0357	0421	0401	1	3					3			*	
06	0421	0448	0427	1	3	1				2			*	
06	0702	0733	0707	1-	5					2	1		*	
06	1030	1108	1050	1	3				2				*	
06	1053	1122	1105	1-	3				2		1		*	
06	1316	1526	1346	2	3				2				*	
07	1750	1800	1801	1	3							2	1806E	16680
09	0436	0528	0443	1-	3					3			*	
09	1745	1820	1800	1-	3							2	1744	16680
12	0210	0245	0219	1-	3					2			*	
14	0017	0051	0023	1-	3					3			0016	16699
15	0822	0910	0828	1	3				3				*	
16	0613	0700	0627	1-	3					2			*	
16	1254	1320	1305	1	3				2				*	
17	0647	0720	0700	1-	3				2				*	
17	1446	1458	1451	1-	3	1			1		1	1	*	
18	0910	0932	0916	1-	5	1			1	2	1		*	
18	1536	1545	1539	1-	3	1			1	1			1536	16714
19	0621	0723	0651	1-	5				1	2			*	
19	0806	0843	0809	2	5	3			5	2	1	1	0806	16717
19	1439	1457	1447	1-	5				2		1	3	1438	16717
19	1736	1830	1742	1-	3							3	1735	16717
19	1951	2045	1958	1-	3							3	1950	16717
20	0128	0143	0131	1-	3					2			0130	NO DATA
20	0538	0642	0554	1-	3					2			*	
22	0433	0454	0441	1-	3					3			*	
23	0811	0903	0825	1	3				2				*	
23	1027	1100	1035	1	3				2				*	
23	1204	1246	1205	1-	3				2		1		1208E	NO DATA
23	1658	1710	1702	1-	5	2			1		1	3	1657	16721
24	0220	0324	0232	1-	3					3			*	
24	0804	0842	0811	1-	3					1	1		*	
24	1450	1520	1455	1	3				3				*	
24	2000	2045	2008	1-	3							3	*	
24	2115	2149	2123	1-	5					2		3	*	
25	0126	0150	0137	1-	3					3			*	
25	0148	0229	0156	1	3					2			*	
25	0426	0540	0436	1	3	1				3			*	
25	0544	0615	0549	1-	3					2			*	
25	0816	0825	0822	1-	1				1		1		*	
25	1225	1235	1227	1-	3	1			1		1		1220	NO DATA
25	1351	1415	1358	1-	3				2		1		1351	16740
25	2050	2127	2100	1-	5					1		4	2053	16718

SUDDEN IONOSPHERIC DISTURBANCES

MARCH 1980

DAY	UNIVERSAL TIME				WIDE SPREAD INDEX	NUMBER OF STATION REPORTS BY TIME							KNOWN FLARE	HALE REGION
	START	END	MAX	IMP		SWF	SCNA	SEA	SPA	LF-SPA	SES	SFD		
26	0006	0040	0016	1	3	1				2			0004	16718
26	0515	0603	0530	1-	3					2			*	
26	0730	0744	0737	1-	5				1	2			*	
26	1015	1030	1022	1-	5	1			1	1	1		*	
26	1329	1410	1332	1	5	2			3		1	4	1329	16718
26	1420	1434	1423	1-	5				3		1	1	1420	16718
26	2203	2230	2210	1-	5					2		2	*	
26	2259	2328	2311	1-	5					2		2	2255	16725
26	2328	0005	2344	1-	3					2			2339E	16725
27	0308	0357	0334	1-	3					3			*	
27	0326	0348	0330	1-	3	1				1			*	
27	0417	0441	0426	1-	3					2			0419E	16740
27	0730	0826	0741	1	5	2			4	2	1	1	*	
27	0851	0915	0858	1-	5				4	1	1	1	*	
27	1048	1125	1059	1-	5	1			1	2	1		*	
27	1148	1155	1151	1-	3	1			1		1		*	
27	1221	1305	1242	1+	5	3			4		1	1	*	
27	1840	1942	1846	1+	5	3				2		4	1838	NO DATA
27	2109	2145	2112	1-	3							2	2102	16728
28	0512	0600	0526	1-	3					3			*	
28	0639	0735	0645	1-	3					3			0643E	16732
28	0954	1047	1002	1+	5	2			3	2	1		*	
28	1356	1452	1400	1	3				2				*	
28	1513	1528	1518	1-	5				2		1	2	1511	16740
28	1959	2048	2008	1+	5					2		3	1959	16733
28	2156	2310	2204	2	5					2		3	2158	16733
29	0043	0108	0048	1	3	1				3			0043	16740
29	0108	0226	0130	1	3					2			0108	16740
29	0327	0412	0333	1-	3					3			0329	16733
29	0512	0555	0519	1	3					2			*	
29	0555	0652	0602	1	5					2	1		*	
29	0736	0755	0740	1-	5	1			2	1	1	1	*	
29	0817	0825	0820	1-	5				1	1	1	1	*	
29	0917	0954	0922	1+	5	2			2	2	1	1	*	
29	0942	1023	0958	2	5	2			2	2	1	1	0942E	16733
29	1140	1158	1142	1-	3	1			1		1		*	
29	1444	1507	1453	1	5	1			3		1	3	1443	16733
29	1815	1845	1819	1-	3							3	1816	16740
29	2039	2101	2051	1	5					1		3	2041	16740
30	0154	0235	0200	1-	3					2			0157	16740
30	0300	0325	0304	1-	1					1			0303	16740
30	0341	0400	0345	1-	1					1			0339	16740
30	1620	1650	1623	1-	3							3	1617	16737
30	1653	1735	1657	1-	3							3	1648	16740
30	1842	1930	1844	1-	3							3	1842	16737
30	2240	2316	2251	1-	5					2		2	2238	16737
30	2344	0129	2348	1-	3					2			*	
31	0047	0146	0050	1	3	1				2			0048	16733
31	1028	1139	1041	1	5	1			1	1	1		1029E	16740
31	1707	1745	1710	1-	3							2	1707	16740

SUDDEN IONOSPHERIC DISTURBANCES

MARCH 1980

PERIODS OF NO OBSERVATIONS:

DATE	TIME (UT) AND STATION
09	0100-1100 PU

STATIONS REPORTING FOR MARCH 1980:

Ellensburg, Washington, USA	SES	Littleton, Colorado, USA	SES
Glenorchy, Tasmania, Australia	SWF	Lüchow, GFR	SWF
Hiraiso, Japan	SWF	Maui, Hawaii, USA	SWF
Hobart, Tasmania, Australia	SEA	Panská Ves, Czechoslovakia	SEA, SES, SWF
Huancayo, Peru	SWF	St. Cloud, Minnesota, USA	SES
Inubo, Japan	SPA	Trenton, New Jersey, USA	SES
Juliusruh, GDR	SWF	Toyokawa, Japan	SPA
Kasugai, Japan	SPA	Úpice, Czechoslovakia	SEA
Kühlungsborn, GDR	SEA, LF-SPA	Vsetín, Czechoslovakia	SEA
		Zilina, Czechoslovakia	SEA

SIDs BY HALE REGION

MARCH 1980

DAY	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
REGION																															
16673				1																											
16680		1					1		1																						
16687		1																													
16699					1									1																	
16714																		1													
16717																			4												
16718																									1	3					
16721																							1								
16725																										2					
16728																											1				
16732																												1			
16733																												2	3		1
16737																														3	
16740																									1		1	1	4	4	2
NO REGION DATA		2		1																1			1		1		1				
NO FLARE PATROL	1			7	3	7			1			1			1	2	2	1	1	1		1	2	5	5	4	7	3	6	1	
EVENT TOTALS	1	4	0	9	4	7	1	0	2	0	0	1	0	1	1	2	2	2	5	2	0	1	4	5	8	9	10	7	13	8	3

PIONEER XII

MAGNETIC FIELD MAGNITUDES

MARCH 1980

DATE	TIME	BMAG
03/01/80	20:46:53	7.09
03/02/80	20:50:31	8.61
03/03/80	20:55:10	8.72
03/04/80	20:51:01	15.06
03/05/80	20:59:32	7.35
03/06/80	21:31:50	7.08
03/07/80	21:03:00	7.64
03/08/80	21:08:56	10.37
03/09/80	21:12:51	5.93
03/10/80	21:13:23	8.37
03/11/80	21:16:27	17.42
03/12/80	21:18:34	2.30
03/13/80	21:23:10	18.65
03/14/80	16:27:49	7.89
03/15/80	21:24:42	8.42
03/16/80	21:26:33	6.85
03/17/80	21:26:39	8.57
03/18/80	21:30:38	12.32
03/19/80	21:30:55	12.03
03/20/80	21:40:06	11.60
03/21/80	21:35:07	10.30
03/22/80	21:39:39	7.72
03/23/80	21:40:24	6.32
03/24/80	21:42:49	8.13
03/25/80	21:45:35	10.36
03/26/80	21:43:12	10.78
03/27/80	21:46:05	10.42
03/28/80	21:48:01	6.93
03/29/80	21:48:55	15.77
03/30/80	20:22:02	9.67
03/31/80		----

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

MARCH 1980

DAY	TIMES OF OBSERVATION START UT	TIMES OF OBSERVATION END UT	STATION	EVENTS: DECIMETRIC BAND START UT	DECIMETRIC BAND END UT	DECIMETRIC BAND INT	METRIC BAND START UT	METRIC BAND END UT	METRIC BAND INT	DEKAMETRIC BAND START UT	DEKAMETRIC BAND END UT	DEKAMETRIC BAND INT	SPECTRAL TYPE
01			LEAR				0402.6	0406.2	2				V
	0000	0745	CULG				0403	0405	1	0403.5	0405	1	IIIGG,U
	0630	1640	DWIN										
	0638	1511	WEIS										
	0725	1600	BLEN										
			LEAR				0751.5	0751.9	1				CONT
	1515	1630	WEIS										
	1344	2345	HARV				1605		2				IIIB
			PALE				1901.5	1908.1	2				CONT
			HARV				2153	2156	2				IIIG
	2045	2400	CULG	2154	2154.5	1							IIIG
			CULG				2154	2321					IIIN,W
			HARV				2204	2205	1				IIIG
			HARV				2305	2308	1				IIIG
			CULG	2305	2321								IIIN,W
			LEAR				2305.7	2308.2	1				CONT
			HARV				2320		2				IIIG
			CULG				2320.5		1				IIIB
02	0000	0744	CULG	0139.5	0140.5	1							I
			CULG	0305.5	0313								UNCLF,W
			CULG				0307	0308		0307.5	0308		IIIG,W
			LEAR				0307.4	0311.6	1				CONT
			CULG				0311	0311.5	1				IIIG
			CULG	0425	0744								IS,W
			CULG				0528						IIIB,W
			LEAR				0528.0	0528.4	1				CONT
	0630	1345	DWIN										
			LEAR				0636.9	0637.1	1				III
	0636	1632	WEIS				0939.9	0943.3	2				IIIG
	0725	1600	BLEN				0941.2	0943.1	2				IIIG
			BLEN	0942.8	0942.8	1							DCIM
			LEAR				0943.9	0944.2	1				V
			WEIS				1102.9	1103.1	1				IIIB
			BLEN				1550.1	1558.2	2				IIIG
			WEIS				1551.6	1601.8	2				IIIGG
	1344	2345	HARV				1555	1600	2				IIIG
			HARV	1636	1638	1	1635	1639	2	1635	1639	1	IIIG
			HARV				1636	1647	3			II	
			HARV				1749	1758	2				IIIG
			HARV				1901	1904	2	1901	1904	1	IIIG
			HARV				1905	1907	2	1905	1907	2	IIIG,V
			HARV				1952	1953	2				IIIG
			HARV				2005	2010	1			II	
			HARV				2006		1				IIIB
			HARV				2015	2017	1			II	
			HARV				2133		1				IIIG
			PALE				2133.0	2133.0	1				III
	2044	2400	CULG				2337						IIIB,W
			LEAR				2337.0	2337.5	1				V
			PALE				2337.1	2337.4	1				V
03	0000	0744	CULG	0002.5									IIIB,W
			CULG	0236	0236.5	1							IIIG
			CULG	0249.5			0249.5						IIIB,W
			LEAR				0357.5	0359.3	1				V
			CULG	0358.5			0357.5	0358.5		0357.5	0358		IIIG,W
			CULG	0420.5	0421	1							IIIG
			CULG	0423.5	0424	1							IIIG
	0725	1247	BLEN										
	0840	1630	DWIN										
	1345	1600	BLEN										
	0634	1531	WEIS				1523.9	1525.2					IIIG
	1344	2345	HARV				1524		1				IIIB
	1538	1633	WEIS										
			HARV	2008		2	2008		1				IIIG
	2044	2400	CULG	2050.5	2052.5	2	2050.5	2053	3				IIIG,V
			PALE				2050.8	2053.5	2				V
			HARV				2051	2053	3	2051	2053	3	IIIG,V
			SGMR				2051.4	2051.6	1				III

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

MARCH 1980

DAY	TIMES OF OBSERVATION START UT	TIMES OF OBSERVATION END UT	STATION	EVENTS: DECIMETRIC BAND START UT	DECIMETRIC BAND END UT	DECIMETRIC BAND INT	METRIC BAND START UT	METRIC BAND END UT	METRIC BAND INT	DEKAMETRIC BAND START UT	DEKAMETRIC BAND END UT	DEKAMETRIC BAND INT	SPECTRAL TYPE
03			CULG	2133.5	2134	2							IIIG
04	0000	0744	CULG	0039	0041	1							IIIG,RS
			CULG	0258	0259	1							IIIG
			LEAR				0343.8	0344.3	1				V
			LEAR				0355.8	0412.8	1			II	
			CULG				0356	0357				II	W
			CULG				0359.5	0413	1			II	
			CULG				0603.5	0604					IIIG,W
			CULG				0708	0709	1				IIIG
	0633	1635	WEIS				0708.0	0712.6	2				IIIGG
			LEAR				0708.0	0710.5	1				CONT
			CULG				0710.5						IIIB,W
	0710	1600	BLEN				0714.0	0714.7	2				IIIGG,RS
			WEIS				0741.2	0741.7	1				IIIG
			WEIS				0745.4	0745.8	2				IIIG,U
			BLEN				0751.4	0751.7	2				IIIG,U
			LEAR				0757.3	0804.3	1				CONT
			WEIS				0757.4	0757.5	1				IIIB
			WEIS				0759.2	0759.8	1				IIIG,RS
			WEIS				0801.6	0802.3	1				IIIG
			WEIS				0804.2	0804.4	2				IIIG
			BLEN				0805.1	0808.2	2				IIIGG
			WEIS				0912.1	0912.2	1				IIIB
			WEIS				0917.5	0917.7	1				IIIG
			LEAR				0917.5	0920.2	1				CONT
			WEIS				0920.4	0921.2	2				IIIG
			WEIS				1006.3	1010.9	2				IIIGG
			LEAR				1010.7	1011.0	1				CONT
			WEIS				1019.2	1020.2	2				IIIG,RS
			BLEN	1025.5	1025.7	2	1025.3	1025.7	2				IIIGG,U
			WEIS				1030.6	1030.7	1				IIIB
	0625	1630	DWIN	1349.0	1351.0	1						IV	
			WEIS				1349.3	1351.4	2				IIIG
			BLEN	1355.1	1356.4	2	1355.1	1356.6	2				UNCLF
			BLEN	1359.8	1359.9	2	1419.5	1419.9	2				IIIG,U
	1400	2345	HARV				1413	1414	1				IIIG
			WEIS				1413.5	1414.0	2				IIIG
			HARV				1809	1809	1				IIIB
			HARV				2025	2026	2				IIIG
			PALE				2025.1	2025.5	2				III
	2044	2400	CULG										
05	0000	0744	CULG	0122.5	0123								IIIG,W
			CULG				0411	0412					IIIG,W
			LEAR				0411.3	0412.1	1				CONT
			LEAR				0558.5	0558.7	1				III
			LEAR				0600.4	0602.1	2				V
			CULG				0600.5		3	0600.5		2	IIIB
			LEAR				0913.9	0914.3	1				CONT
	0625	1630	DWIN	1006.6	1007.6	2							IIIG
	0710	1405	BLEN	1012.7	1013.5	1							DCIM
	0630	1504	WEIS				1050.0	1053.2	2				IIIG
			BLEN				1308.4	1308.4	2				IIIB,U
	1447	1600	BLEN										
	1538	1637	WEIS										
	1344	2345	HARV				1821	1822	2				IIIG
			HARV				1918		2				IIIG
			HARV				1952		1				IIIG,W
	2044	2400	CULG	2207	2210.5								IIIN,W
			CULG				2233.5	2234					IIIG,W
			CULG				2318.5	2400					IIIN,W
			HARV				2320		1				IIIB
			CULG				2334.5	2347	2			II	H
			LEAR				2334.9	2348.5	1			II	
			HARV				2335		2				IIIG
			PALE				2337.7	2342.1	1				CONT
06	0000	0744	CULG				0002						IIIB,W
			LEAR				0044.2	0044.8	1				CONT

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

MARCH 1980

DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
06			LEAR				0117.6	0117.9	1				CONT
			LEAR				0123.9	0124.6	2				CONT
			CULG				0124	0124.5	3	0124	0124.5	2	IIIG
			PALE				0124.0	0124.5	2				V
			LEAR				0241.7	0241.9	1				CONT
			CULG				0242		1	0242		1	IIIB
			CULG	0355	0359								IN,W
			LEAR				0409.7	0410.2	1				CONT
			LEAR				0551.7	0601.4	1				CONT
	0620	1630	DWIN										
			CULG				0727	0727.5					IIIG,W
	0628	1638	WEIS				0727.2	0727.7	2				IIIG
			LEAR				0727.2	0727.4	1				III
			WEIS				0821.7	0821.9	2				IIIG
			WEIS				1036.4	1036.5	1				IIIB
			WEIS				1054.2	1059.7	2				IIIG
	0705	1605	BLEN	1055.5	1104.0	1	1100.2	1100.6	2				IIIG,DCIM
			WEIS				1235.0	1235.7	2				IIIG
			WEIS				1253.8	1254.2	1				IIIG
			WEIS				1317.6	1317.8	1				IIIB
			WEIS				1332.9	1333.1	1				IIIB
			WEIS				1402.3	1402.4	1				IIIB
			WEIS				1506.4	1506.7	2				IIIG
			WEIS				1534.6	1634.8	2				IIIG
	1331	2400	HARV				1635		1				IIIB
	2045	2400	CULG										
07	0000	0743	CULG										
			LEAR				0421.7	0422.0	1				CONT
	0620	1630	DWIN										
	0705	1605	BLEN										
	0627	1511	WEIS				1414.6	1415.7	1				IIIG
	1517	1640	WEIS										
	2043	2400	CULG				2052.5						IIIB,W
			CULG				2107.5						IIIB,W
			CULG				2114.5	2300					IN,W
	1331	2345	HARV				2115	2247	1				I
08	0000	0743	CULG										
	0615	1630	DWIN										
	0624	1641	WEIS				0807.3	0807.8	1				IIIG
			LEAR				0807.5	0833.7	1				S
			WEIS				0821.5	0821.9	2				IIIG
			WEIS				0826.3	0828.4	2				IIIG
			WEIS				0831.8	0833.9	2				IIIG
			WEIS				0839.2	0841.3	2				IIIG
			WEIS				0844.7	0844.8	1				IIIB
			WEIS				1015.8	1016.4	2				IIIG
			WEIS				1036.5	1037.2	2				IIIG
			WEIS				1119.3	1121.0	2				IIIG
	0705	1355	BLEN				1125.4	1127.8	2				IIIGG
			WEIS				1136.9	1137.2	2				IIIG
			WEIS				1329.4	1329.5	1				IIIB
	1331	2345	HARV				1511	1512	1				IIIG,W
			WEIS				1511.5	1512.0	2				IIIG
			WEIS				1520.2	1520.3	1				IIIB
			PALE				2037.3	2040.4	1				CONT
			HARV	2254		1							IIIB
	2043	2400	CULG	2254	2254.5	1							IIIG
09			LEAR				0031.8	0032.3	1				V
	0000	0743	CULG				0032	0703					IIIN,W
			LEAR				0158.2	0158.4	1				V
			LEAR				0205.8	0212.2	1				CONT
			CULG	0206	0423	1							IIIG,N
			CULG				0549.5		2				IIIB
			LEAR				0702.5	0703.4	1				CONT
	0622	1440	WEIS				0703.0	0703.3	1				IIIG
			LEAR				0712.0	0730.3	1				CONT
			WEIS				0712.2	0712.4	1				IIIG

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DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
09			LEAR				0815.3	0815.5	1				V
			WEIS				0912.6	0914.0	3				IIIGG
			LEAR				0912.8	0914.6	1				CONT
	0615	1350	DWIN	0914.6	0916.1	1							IV
			WEIS				1017.0	1017.3	2				IIIG
			WEIS				1159.7	1203.6	3				IIIGG
	0930	1615	BLEN				1206.7	1209.2	3				IIIGG
			WEIS				1238.2	1239.3	2				IIIG
			WEIS				1250.7	1252.3	2				IIIGG
			WEIS				1339.8	1340.2	1				IIIB
			BLEN	1353.4	1406.9	1	1405.8	1407.2	3				IIIGG,DCIM
			WEIS				1359.8	1400.0	2				IIIG
	1331	2345	HARV				1400		2				IIIG
			WEIS				1405.4	1405.7	3				IIIG
	1447	1642	WEIS										
			HARV				2054	2057	2	2056	2057	2	IIIG,V
	2043	2400	CULG	2055.5	2056	1	2055.5	2057	2				IIIG,V
			PALE				2055.6	2057.2	2				V
			HARV				2315		2				IIIG
			CULG				2315	2315.5					IIIG,W
			CULG	2315	2315.5	1							IIIG
10	0000	0742	CULG				0624	0625	1				IIIG
			LEAR				0624.3	0626.0	1				V
	0621	1644	WEIS				0624.5	0625.3	2				IIIG
	0955	1640	DWIN										
			WEIS				1158.6	1201.4	2				IIIGG
	0650	1610	BLEN				1158.7	1201.0	2				IIIGG
	1331	2400	HARV										
	2042	2400	CULG										
11	0000	0700	CULG	0053.5	0055.5	2	0053	0055.5	2	0054	0055.5	2	IIIGG
			LEAR				0054.1	0055.7	2				CONT
			PALE				0054.1	0055.8	1				CONT
			LEAR				0073.9	0074.8	1				V
	0620	1640	DWIN										
	0617	1405	WEIS				0702.9	0703.4	2				IIIG
	0650	1500	BLEN				0703.9	0704.1	2				IIIG
			LEAR				0703.9	0704.8	1				V
			WEIS				1128.7	1130.8	1				IIIG
			WEIS				1149.7	1149.8	1				IIIG
			SGMR				1242.2	1242.6	2				III
			WEIS				1242.3	1242.9	3				IIIG
			WEIS				1333.7	1333.9	1				IIIG
	1410	1646	WEIS				1434.8	1435.0	2				IIIG
	1331	2400	HARV				1544	1545	1				IIIG
			WEIS				1544.2	1544.6	2				IIIG
			WEIS				1628.9	1629.1	1				IIIB
			PALE				1857.6	1857.9	1				III
			HARV				1858		2				IIIG
			HARV				2109		1				IIIG
	2045	2400	CULG				2109		2				IIIB
			CULG				2123.5	2124	2				IIIG
			PALE				2123.6	2123.8	1				III
			HARV				2124		1				IIIG
12	0000	0742	CULG										
	0620	1640	DWIN										
	0645	1620	BLEN										
	0616	1646	WEIS				0921.3	0923.4	1				IIIG
			WEIS				1408.6	1408.7	1				IIIG
			WEIS				1425.3	1426.0	2				IIIG
	1346	2345	HARV				1624		1				IIIB
			WEIS				1624.1	1624.3	2				IIIG
			HARV				1909	1910	1				IIIG
			PALE				1909.0	1913.1	1				CONT
			HARV				1913		2				IIIG
			HARV				1948		1				IIIB
			HARV				2033		2				IIIG
			PALE				2033.0	2033.4	2				V

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DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
12	2042	2400	CULG				2046.5	2048	1				IIIG
			PALE				2046.5	2047.3	1				V
			HARV				2047	2048	1				IIIG
			CULG				2104	2306					IIIN,W
			HARV				2156	2157	2				IIIB
			CULG				2156		1				IIIB
			HARV				2159		2				IIIB
			CULG				2159.5		1				IIIB
			PALE				2308.9	2309.3	1				III
			CULG				2309	2309.5		2309	2309.5		IIIG,W
13	0000	0742	CULG				0017	0017.5					IIIG,W
			CULG				0206						IIIB,W
			CULG				0208						IIIB,W
			LEAR				0412.4	0413.0	1				V
			LEAR				0523.4	0524.1	1				CONT
			CULG				0524	0524.5					IIIG,W
			CULG				0527	0527.5					IIIG,W
	0620	1640	DWIN										
			CULG				0637.5	0639					IIIG,W
	0614	1303	WEIS				0637.7	0639.6	1				IIIG
			LEAR				0638.8	0639.8	1				CONT
			LEAR				0707.1	0707.4	1				CONT
			CULG				0737		1				IIIB
			WEIS				0737.1	0737.4	1				IIIB
			WEIS				0812.3	0814.2	2				IIIGG
			LEAR				0812.5	0820.1	1				CONT
			WEIS				0818.7	0820.0	2				IIIG
	0640	1330	BLEN				0819.6	0819.6	2				IIIB
			WEIS				0927.1	0927.8	1				IIIB,U
			BLEN				1014.1	1014.2	2				IIIG
			WEIS				1014.2	1015.4	3				IIIGG
			WEIS				1019.9	1020.3	2				IIIG
			WEIS				1142.6	1143.4	1				IIIGG
			WEIS				1147.6	1149.0	1				IIIG
	1307	1649	WEIS										
	2042	2400	CULG				2140.5						IIIB,W
			CULG				2231	2234					IIIG,W
	1331	2345	HARV				2231	2232	1				IIIG
			LEAR				2325.3	2325.6	1				CONT
14	0612	1651	WEIS										
	0615	1640	DWIN										
	0000	0742	CULG				0648.5						IIIB,W
			SGMR				1306.8	1307.3	2				V
	1331	2256	HARV										
	1448	1620	BLEN										
	2042	2400	CULG				2332.5	2333.5	1				IIIG
			PALE				2332.7	2333.7	1				CONT
			CULG				2356.5						IIIB,W
15	0000	0741	CULG				0002	0712					IIIN,W
			PALE				0002.1	0005.9	1				CONT
			LEAR				0002.3	0005.8	1				S
			CULG				0005.5	0006	1	0005.5	0006	1	IIIG
			CULG				0014		1				IIIB
			CULG				0128.5	0129		0128.5	0129		IIIG,W
			LEAR				0128.6	0128.9	1				V
			CULG				0231	0233.5	3	0231.5	0233	3	IIIG,V
			PALE				0231.1	0233.1	2				V
			LEAR				0231.2	0233.7	2				V
			CULG				0238	0238.5	1				IIIB
			LEAR				0238.4	0239.1	1				CONT
			CULG				0411	0412.5	3	0411.5	0412	3	IIIG,V
			LEAR				0411.3	0412.6	2				V
			LEAR				0427.9	0428.5	1				V
			LEAR				0615.1	0615.5	1				V
	0610	1149	WEIS				0712.3	0712.4	1				IIIB
			WEIS				0906.5	0911.3	3				IIIGG
	0610	1640	DWIN	0908.1	0910.5	1							IIIG

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DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
15	0635	1620	BLEN	0908.2	0910.4	1	0908.2	0910.4	2				IIIG,DCIM
			LEAR				0908.7	0910.9	1				CONT
			WEIS				0943.5	0943.7	1				IIIB
			WEIS				1128.7	1131.4	2				IIIGG
	1159	1652	WEIS										
	2041	2400	CULG				2127.5		1				IIIB
			PALE				2128.5	2131.1	1				CONT
			CULG				2130.5	2131					IIIG,W
			CULG				2247.5	2251.5	1				IIIN
			PALE				2249.2	2151.2	1				CONT
			CULG				2249.5	2250	2	2249.5	2250	1	IIIG
			LEAR				2249.6	2249.8	1				CONT
			LEAR				2332.7	2333.6	1				V
16	0000	0739	CULG										
	0610	1340	DWIN										
	0630	1630	BLEN										
	0608	1653	WEIS				0920.9	0921.1	1				IIIG
	1331	2345	HARV										
	2042	2400	CULG										
17	0000	0740	CULG				0153						IIIB,W
			CULG				0154						IIIB,W
	0605	1006	WEIS				0640.0	0640.2	1				IIIB
	0630	1630	BLEN				0645.8	0646.1	1				IIIG
			WEIS				0646.2	0647.0	2				IIIG
			CULG				0646.5	0647					IIIG,W
	0805	1640	DWIN										
			WEIS				0937.0	0941.1	3				IIIG
	1012	1655	WEIS				1059.9	1100.1	2				IIIG
			WEIS				1512.6	1512.8	2				IIIG
	1331	2345	HARV				1513		1				IIIG,W
			WEIS				1528.4	1528.7	2				IIIB
			HARV				1914		2				IIIG
	2040	2400	CULG				2244		1				UNCLF
			HARV				2244		1				IIIB
18	0000	0740	CULG										
			LEAR				0325.7	0326.1	1				CONT
	1330	2400	HARV				1333	1334	1				IIIG,W
	1016	1635	BLEN				1333.2	1333.8	2				IIIG
	0603	1655	WEIS				1333.6	1333.9	1				IIIG
			BLEN	1335.1	1335.4	1							DCIM
	0605	1640	DWIN	1539.5	1540.0	2							IIIG
			BLEN	1539.8	1543.3	2							DCIM
			DWIN	1541.5	1541.6	2							IIIG
			HARV				1602	1603	1				IIIB
			WEIS				1602.4	1602.6	2				IIIB
			HARV				2047		2				IIIB
	2040	2400	CULG				2047		1				IIIB
			HARV				2347	2348	2				IIIG
			CULG	2347	2347.5	1	2347	2347.5	1				IIIG
19	0000	0740	CULG				0020.5						IIIB,W
			CULG				0133.5	0134.5					IIIG,W
			CULG	0319	0320	2	0319.5	0320	2	0320	0320.5	1	IIIG
			LEAR				0319.7	0320.4	2				V
			CULG	0524	0524.5	1	0524	0524.5	1				IIIG
			LEAR				0524.0	0524.5	1				CONT
			CULG	0619	0740	1							IIIG,N
	0619	1635	BLEN	0619.4	0619.7	1							DCIM
			BLEN	0628.2	0628.2	2	0628.2	0628.2	2				IIIB
			BLEN	0632.9	0632.9	1							IIIB
			BLEN	0636.5	0636.5	2	0636.5	0636.5	2				IIIB
			BLEN	0643.6	0644.1	1							DCIM
	0605	1640	DWIN	0643.8	0644.1	1							IIIG
	0602	0824	WEIS				0657.5	0657.6	1				IIIG
			BLEN	0657.5	0657.5	1	0657.4	0657.5	3				IIIG
			WEIS				0725.7	0727.1	1				IIIG
			LEAR				0725.7	0726.1	1				CONT

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DAY	TIMES OF OBSERVATION START UT	TIMES OF OBSERVATION END UT	STATION	EVENTS: DECIMETRIC BAND START UT	DECIMETRIC BAND END UT	DECIMETRIC BAND INT	METRIC BAND START UT	METRIC BAND END UT	METRIC BAND INT	DEKAMETRIC BAND START UT	DEKAMETRIC BAND END UT	DEKAMETRIC BAND INT	SPECTRAL TYPE
19			BLEN	0725.9	0737.5	2	0725.9	0737.5	3				IIIGG
			WEIS				0735.6	0736.4	2				IIIGG
			DWIN	0735.6	0737.4	1							IIIG
			BLEN	0802.4	0808.8	3	0806.8	0809.5	3				IIIGG,U
			DWIN	0802.4	0802.6	1							IIIG
	0605	1640	DWIN	0805.7	0808.2	2						IV	P
			WEIS				0806.3	0807.2	3				IIIG
			LEAR				0806.7	0807.2	2				CONT
			WEIS				0808.3	0809.5				II	HARM
			BLEN				0824.7	0824.9	1				IIIG
			DWIN	0920.2	0920.3	1							IIIG
			BLEN	0920.3	0930.9	2							DCIM
	0828	1658	WEIS				0930.9	0931.2	1				IIIB
			LEAR				0931.0	0931.2	1				CONT
			BLEN	1012.2	1012.9	1							DCIM
			WEIS				1109.0	1109.3	1				IIIB
			BLEN	1117.3	1117.5	1							DCIM
			DWIN	1157.8	1157.9	1							IIIG
			BLEN	1157.8	1158.0	1							DCIM
			WEIS				1250.2	1250.3	1				IIIB
			BLEN				1400.5	1400.9	1				IIIG
			WEIS				1432.9	1444.0	3				IIIGG
			BLEN	1437.0	1441.2	2	1438.8	1441.2	3				IIIGG,DCIM
	1331	1533	HARV				1438	1441	2				IIIGG
			DWIN	1438.0	1440.5	1						IV	
			SGMR				1439.9	1440.6	3				CONT
	1706	2400	HARV				1910	1911	1				IIIG,W
			HARV				1945	1949	1	1945	1949	1	IIIGG
			PALE				1945.0	1958.0	1				V
			HARV				1956	1958	2	1956	1958	2	IIIGG
			HARV				2002	2008	3			II	
	2040	2400	CULG				2052	2055					I,W
			CULG				2258	2259.5					IIIG,W
			CULG	2304.5	2305	1	2304.5	2305.5	2				IIIG
			LEAR				2304.9	2305.3	1				V
			HARV	2305		1	2305		2				IIIG
20			LEAR				0016.3	0016.4	1				III
	0000	0740	CULG				0127.5	0128.5					IIIG,W
			CULG				0452						IIIB,W
			CULG				0542.5						IIIB,W
			CULG				0546.5	0548.5	1				IIIGG
	0600	1640	DWIN										
	0630	1635	BLEN										
	0600	1659	WEIS				0652.2	0653.3	1				IIIG
			WEIS				0753.3	0753.7	1				IIIG
			WEIS				0824.6	0824.7	2				IIIB
			WEIS				1517.5	1517.7	1				IIIG
			WEIS				1518.9	1519.3	2				IIIG
	1331	2400	HARV				1610		2				IIIG
			WEIS				1610.4	1610.6	3				IIIG
			WEIS				1636.9	1640.2	3				IIIGG
			HARV				1637	1638	2				IIIG
	2040	2400	CULG										
21	0000	0720	CULG				0133.5		1				IIIB
			CULG				0134.5	0136.5	2	0135	0136	1	IIIG,U
			PALE				0134.8	0136.3	1				V
			PALE				0234.8	0236.3	1				V
			CULG				0313.5	0314					IIIG,W
	0600	1645	DWIN										
	0630	1403	BLEN										
	0707	1700	WEIS										
	2040	2400	CULG				2232.5	2233	1	2233		1	IIIG
			PALE				2232.9	2233.2	1				III
	1338	2345	HARV				2233		2				IIIG
			CULG				2240						IIIB,W
22	0000	0739	CULG	0001.5	0002								IIIG,W
			CULG				0303.5	0304	2				IIIG

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DAY	TIMES OF OBSERVATION START UT	TIMES OF OBSERVATION END UT	STATION	EVENTS: DECIMETRIC BAND START UT	DECIMETRIC BAND END UT	DECIMETRIC BAND INT	METRIC BAND START UT	METRIC BAND END UT	METRIC BAND INT	DEKAMETRIC BAND START UT	DEKAMETRIC BAND END UT	DEKAMETRIC BAND INT	SPECTRAL TYPE
22			CULG	0303.5	0304					0303.5	0304		IIIG,W
			LEAR				0303.6	0304.2	1				CONT
			LEAR				0532.0	0523.2	1				V
	0600	1640	DWIN										
	0554	1603	WEIS				0737.1	0737.3	1				IIIB
			LEAR				0832.4	0832.6	1				III
			WEIS				0935.2	0935.3	2				IIIG
			LEAR				0941.8	0951.2	1				CONT
			WEIS				0950.7	0951.0	2				IIIG
	1052	1635	BLEN										
			WEIS				1326.6	1328.3	2				IIIG
	1450	2400	HARV										
	1611	1703	WEIS										
	2039	2400	CULG										
23	0000	0739	CULG	0118	0118.5	1							IIIG
			CULG				0221.5						IIIB,W
			LEAR				0222.8	0229.9	1				CONT
			CULG				0223.5						IIIB,W
			LEAR				0449.6	0449.9	1				V
			LEAR				0510.6	0515.0	1				CONT
			CULG				0514.5	0515	1				IIIG
	0600	1030	DWIN										
			CULG				0603	0603.5					UNCLF,W
			LEAR				0603.0	0604.0	1				V
	0552	1704	WEIS				0643.5	0647.2	2				IIIG
			LEAR				0645.4	0647.6	1				CONT
			WEIS				0835.2	0835.4	2				IIIG
			WEIS				1135.9	1137.5	1				IIIG,U
	0625	1640	BLEN	1141.3	1141.5	1							DCIM
			BLEN	1206.7	1207.8	2							DCIM
			BLEN				1223.5	1223.9	2				IIIGG,U
			WEIS				1223.6	1224.0	2				IIIG,RS
			WEIS				1316.9	1317.3	2				IIIG
			WEIS				1321.4	1321.7	2				IIIG
	1335	2400	HARV				1921	1923	2				IIIG
	2039	2400	CULG	2256	2256.5	2							IIIG
			HARV	2256		1	2256		1				IIIG
24	0000	0738	CULG	0029	0029.5	1							IIIG
			CULG	0049		1							IIIB
			LEAR				0102.3	0102.7	1				CONT
			CULG	0223.5			0223.5						IIIB,W
			CULG	0346	0346.5	1	0346	0346.5	2				IIIG
	0550	1354	WEIS				0628.7	0629.3	1				IIIG
			LEAR				0631.8	0639.0	1				CONT
			WEIS				0637.4	0637.6	1				IIIG
	0620	1640	BLEN	0804.7	0805.1	2							DCIM
	0815	1650	DWIN										
			BLEN				0957.6	0957.8	3				IIIG,U
			WEIS				0957.7	0958.2	2				IIIG
			LEAR				0957.8	0958.0	1				CONT
			WEIS				1202.7	1202.9	1				IIIB
			WEIS				1211.4	1211.8	1				IIIG
			WEIS				1335.6	1335.7	1				IIIB
	1334	2345	HARV				1358	1359	2				IIIG
			BLEN	1358.2	1358.7	2	1358.2	1358.7	3				IIIGG,RS
			HARV				1401	1402	1				IIIG,W
	1358	1705	WEIS				1500.7	1501.4	2				IIIG
			BLEN				1530.9	1535.2	2				IIIG
			HARV				1531		3				IIIG
			HARV				1535		2				IIIG
			WEIS				1535.6	1535.4	2				IIIG
			HARV				1939		2				IIIG
	2039	2400	CULG				2133	2314					IIIN,W
			HARV				2133		1				IIIG
			CULG				2213		1				IIIB
			HARV				2213	2214	2				IIIG
			HARV				2218		2				IIIG
			HARV				2314		1				IIIB

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DAY	TIMES OF OBSERVATION START UT	TIMES OF OBSERVATION END UT	STATION	EVENTS: DECIMETRIC BAND START UT	DECIMETRIC BAND END UT	DECIMETRIC BAND INT	METRIC BAND START UT	METRIC BAND END UT	METRIC BAND INT	DEKAMETRIC BAND START UT	DEKAMETRIC BAND END UT	DEKAMETRIC BAND INT	SPECTRAL TYPE
25	0000	0738	CULG				0103	0628					IIIN,W
			LEAR				0133.2	0133.5	1				CONT
			LEAR				0219.0	0219.3	1				CONT
			LEAR				0255.1	0255.5	1				CONT
			LEAR				0410.0	0457.2	2			II	
			CULG				0414.5	0416.5		0414.5	0416.5		IIIG,W
			CULG				0422.5		1	0422.5		1	IIIB
			CULG				0423.5	0439	3	0424.5	0437.5	3 II	H
			CULG	0426	0429	1	0426	0429	1				IIIGG
			CULG	0435.5	0436	2	0435.5	0436	2				IIIG
			CULG	0437.5		1	0437.5		1				IIIG
			CULG	0438.5		1							IIIG
			CULG	0443.5	0444	1	0443.5	0444	1				IIIG
			CULG				0457		1				IIIB
	0550	1650	DWIN										
	0548	1707	WEIS				0553.9	0554.1	2				IIIB
			LEAR				0553.9	0554.5	1				CONT
			CULG				0554		2				IIIB
			WEIS				0628.5	1645.0	2				IIIN
			LEAR				0812.0	0814.3	1				CONT
			LEAR				0918.1	0918.6	1				CONT
	0605	1215	BLEN	1001.7	1002.2	3	1001.7	1002.2	3				IIIGG
			WEIS				1010.8	1012.5	2				IIIGG
			BLEN				1052.6	1053.1	2				I
	1334	2345	HARV				1403	1405	1				IIIG
	1300	1650	BLEN	1448.8	1451.4	3	1448.8	1451.4	3				IIIGG
			HARV				1449	1451	3				IIIGG
			WEIS				1452.7	1454.3	3				IIIGG,U
			HARV				1453		1				IIIG
			HARV				1459		1				IIIG
			HARV				1645		2				IIIG
			HARV	1717	1718	2	1718	1719	2				IIIG
			HARV				1800		2				IIIG
			HARV				1850	1851	1				IIIG
			HARV	1924	1925	1							IIIG
			HARV				1944	1946	2	1944		2	IIIGG
			PALE				1944.7	1944.9	1				III
			HARV				2042		1				IIIB
	2038	2400	CULG	2046.5	2052	1	2046.5	2052	2				IIIGG
			PALE				2046.8	2245.0	1				B
			HARV				2047	2054	3				IIIGG
			HARV				2100	2110	2			II	
			CULG				2100.5	2111	2			II	
			HARV				2126		1				IIIG,W
			CULG				2126		1				UNCLF
			PALE				2145.2	2146.6	2				V
			CULG	2145.5	2146	3	2145	2146.5	3				IIIG,V
			HARV	2146		1	2145	2146	2	2145		2	IIIG,V
			HARV				2151		1				IIIG
			CULG	2201	2203	1							IIIGG
			HARV				2201	2203	2				IIIG
			HARV				2208	2209	2				IIIG
			HARV				2303	2304	1				IIIG
			CULG				2303	2307					IIIN,W
			HARV				2331		1				IIIG
			HARV				2343		1				I
26	0000	0626	CULG				0003	0008	1	0007	0007.5	I	POSS II
			LEAR				0003.1	0008.7	2				CONT
			CULG	0003.5	0004.5	2	0004	0005	3	0004	0005	2	IIIG
			PALE				0004.0	0008.2	3				V
			CULG				0005	0008	1	0005	0008	1	IIIG
			CULG	0007	0007.5								IIIG,W
			CULG				0011.5	0024.5	2			II	H
			LEAR				0011.5	0025.6	1			II	
			PALE				0013.1	0016.5	2			II	
			PALE				0016.8	0024.5	1			IV	
			LEAR				0046.8	0047.2	1				V
			CULG				0047						IIIB,W
			CULG				0309	0309.5					IIIG,W

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				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
26			CULG	0310	0311	1							IIIG
			LEAR				0311.6	0311.8	1				III
			CULG				0324.5						IIIB,W,U
			CULG				0504	0528	1				IIIS
			CULG	0517	0518.5	2	0517.5	0518	3				IIIG
			LEAR				0517.2	0534.1	2				S
			CULG	0555	0634								IS,W
	0610	1650	BLEN				0610 E	1650 D	2				I,DC
	0545	1121	WEIS				0613	1642	2				IN,DC
			WEIS				0617	1701	2				IIIN
			LEAR				0622.1	0626.8	1				CONT
			CULG				0624	0626	1				IIIG
	0550	1650	DWIN	0731.0		2							IIIB
			BLEN	0731.0	0731.4	2							IIIG,RS
			LEAR				0750.8	0751.8	1				CONT
			LEAR				0822.5	0825.6	1				CONT
			BLEN				1011.3	1017.2	2				IIIGG,U
			BLEN				1039.4	1039.9	2				IIIGG
			WEIS				1039.6	1040.3	2				IIIG
			BLEN				1328.5	1335.3	2				IIIG,U
	1130	1359	WEIS				1328.7	1331.7	3				IIIGG,U
			BLEN	1330.1	1331.3	1							DCIM
			HARV				1335	2345	2				IIIN
	1335	2345	HARV				1335	2345	2				I
			HARV				1416	1420	3				IIIGG
			BLEN	1420.8	1421.2	2	1419.8	1421.2	3				IIIGG,U
			DWIN	1421.2	1421.3	2							IIIG
			HARV				1431	1435	1				IIIG
	1509	1707	WEIS				1509.3	1509.7	3				IIIG
			HARV				1530	1531	2	1530	1531	1	IIIG
			BLEN				1530.1	1530.4	2				IIIG
			WEIS				1605.7	1606.2	3				IIIG
			HARV				1606		2				IIIG
			HARV				1620	1621	2	1621		2	IIIG
			HARV				1646		3				IIIG
			BLEN				1646.1	1646.2	2				IIIG
			WEIS				1646.1	1646.4	3				IIIG
			HARV				1700		1				IIIG
			HARV				1712	1713	2				IIIG
			HARV				1847		2				IIIG,U
			HARV				1911	1923	2				IIIGG
			HARV				1952	1954	2				IIIG
			HARV				2002	2005	3	2002	2003	2	IIIGG
			HARV				2009		2				IIIG,U
			HARV				2047		2	2047		2	IIIG
	2037	2400	CULG				2047	2350					IIIN,W
			HARV				2113	2120	3	2113	2115		IIIGG
			PALE				2113.2	2115.4	1				V
			CULG	2113.5	2114.5	1	2113	2115.5	3				IIIG,V
			CULG				2119	2328	1				IIIN
			PALE				2242.3	2341.8	2				S
			HARV				2243	2246	3	2245		2	IIIGG
			CULG	2246		1	2239.5	2245.5	2				IIIG
			HARV				2255	2317	3				IIIGG
			CULG	2255	2259	1	2255	2259.5	1				IIIGG
			CULG				2303	2307	1				IIIGG
			CULG				2311	2311.5	2	2311	2311.5	1	IIIG
			CULG				2315.5	2317	3				IIIG,V,U
			CULG				2322	2325.5	1			II	
			HARV				2322	2325	2			II	
			HARV				2327	2328	2				IIIG
			HARV				2338	2340	3				IIIGG
			CULG				2338	2342	2				IIIGG,V
			LEAR				2338.2	2342.3	2				CONT
27	0000	0737	CULG				0004	0737					IIIN,W
			CULG				0008	0731	1				IIIN
			CULG	0047.5	0048.5		0047	0048					IIIG,W
			CULG	0103	0602	2	0103	0730	2	0103	0402	1	IIIG,N
			CULG	0117.5	0118	1	0117	0118.5	3	0117	0118.5	2	IIIG

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				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
27			CULG				0225	0226	3	0225	0226	3	IIIG
			CULG				0326	0336	1	0327.5	0336	2	IIIN
			CULG	0414	0415	1							FAST DRIFT
			CULG				0509.5	0510.5	3	0510		2	IIIG
			CULG				0511		3				IIIB
			CULG	0528.5	0529	1							IIIG,RS
	0545	1708	WEIS				0550.0	1659.0	3				IIIS,CONT
	0600	1650	BLEN				0600 E	1650 D	2				I,DC
			BLEN				0601.4	0601.4	3				IIIG
			WEIS				0616.0	1319.0	2				IN
			WEIS				0712.2	0712.6	3				IIIG
			WEIS				0720.9	0722.9	3				IIIGG
			BLEN				0721.7	0722.0	2				IIIG
			WEIS				0729.0	0731.0	3				IIIGG
	0536	1700	DWIN	0741.0	0741.4	1							IIIG
			BLEN	0754.7	0755.4	1							DCIM
			BLEN	0848.4	0851.8	2	0848.4	0848.9	2				IIIG,DCIM
			WEIS				0848.7	0849.3	3				IIIG
			BLEN				0901.8	0902.4	1				IIIG
			WEIS				0925.9	0928.3	3				IIIGG
			BLEN				0926.7	0926.9	2				IIIG
			BLEN				1007.7	1008.6	3				IIIGG
			WEIS				1007.8	1010.0	3				IIIGG
			BLEN	1022.5	1022.7	2							DCIM,U
			BLEN				1028.2	1042.2	2				IIIGG
			BLEN	1102.7	1106.3	2	1102.7	1106.3	2				IIIGG
			BLEN	1133.8	1135.3	2	1133.8	1135.3	2				IIIGG,DCIM
			DWIN	1134.1	1137.0	1						IV	
			BLEN	1230.5	1237.9	2	1221.8	1237.9	2				IIIGG,DCIM
			BLEN	1235.0	1353.0	3	1235.0	1353.4	3			IV	F,P
			DWIN	1251	1332	2						IV	F,DCIM
	1319	2345	HARV				1344	2345	2				IC
			HARV				1347	2334	2				IIIN
			WEIS				1350.7	1351.9	3				IIIG
			HARV				1411	1416	2				IIIG
			BLEN				1411.4	1415.6	2				IIIG
			HARV				1534	1541	2				IIIGG
			BLEN				1534.6	1540.8	2				IIIG
			HARV				1555	1556	2				IIIG
			HARV				1604	1609	2				IIIGG
			BLEN				1605.9	1606.3	2				IIIG
			HARV				1640		2				IIIB
			DWIN	1645.5	1647.7	1							IIIG
			HARV				1657	1659	2				IIIG
			HARV				1805	1814	3	1807	1813	2	IIIGG
			HARV				1839	1846	3	1839	1841	2	IIIGG
			HARV				1840	1843	3			II	
			HARV				1909	1916	2			IV	
			HARV				1932	1945	2	1937	1945	2	IIIGG
			HARV				1951	2001	2	1952	1953	2	IIIGG
			HARV				2012	2014	2	2014		2	IIIG
			HARV				2030	2033	3	2030	2033	3	IIIG
	2037	2222	CULG				2039	2210					IS,W
			CULG				2040	2222					IIIN,W
			HARV				2058	2103	2				IIIG
			CULG				2058.5	2059	2				IIIG
			CULG				2059.5	2100	2				IIIG
			HARV				2106	2114	3	2108	2109	3	IIIGG,V
			CULG				2106	2111.5	1				POSS II
			CULG				2106.5		1				IIIB
			CULG	2108	2110.5	1	2108	2111.5	3				IIIGG,V
			CULG	2112	2114	1							I
			HARV				2120	2121	2				IIIG
			CULG				2120.5	2121.5	1				IIIG
			CULG				2122	2128	2				POSS II
			CULG	2155	2211								IS,W
			HARV				2205	2213	2				DC
	2225	2400	CULG				2225	2328					IIIN,W
			CULG	2243.5	2244								IIIG,W
			CULG	2320	2320.5	1	2320	2320.5	1				IIIG

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				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
28	0000	0732	CULG	0010	0524		0010	0732					IIIN,W
			CULG				0031.5	0034	1	0031.5	0034	1	IIIGG
			CULG	0035.5	0036	1	0035.5	0036	2	0035.5	0036	2	IIIG
			CULG	0043	0043.5	1	0043	0043.5	3	0043	0043.5	2	IIIG
			CULG				0045.5	0732	1				IIIG,N
			CULG	0059	0100.5	1							I
			CULG							0152	0732		IIIN,W
			CULG	0157	0200	2	0156	0200	2	0157.5	0159.5	1	IIIGG
			CULG	0201	0204	1	0202	0205	2	0203	0204.5	1	IIIGG
			CULG				0316.5	0317	2	0316.5	0317	1	IIIG
			CULG				0319	0320	2	0319.5	0320	2	IIIG
			PALE				0329.0	0333.6	2				CONT
			CULG	0340	0341.5	1	0340	0342	3	0340	0342	3	IIIGG,V
			LEAR				0349.7	0356.4	2				CONT
			CULG	0353	0354	2	0353	0354	3	0353	0354	3	IIIG
			LEAR				0405.5	0443.5	1				S
			CULG	0415	0415.5	2	0415	0415.5	2	0415	0415.5	2	IIIG
			LEAR				0511.6	0525.3	2				S
			CULG	0517	0518.5	2	0517	0518.5	2	0518	0518.5	1	IIIG
			CULG				0523		2				IIIB
			CULG	0612	0624								IN,W
			LEAR				0612.0	0613.1	2				CONT
	0544	0905	WEIS				0616	1700.0	3				IIIS
			CULG				0642		2				IIIB
	0600	1507	BLEN				0642.2	0642.7	2				IIIG
			CULG				0706	0706.5	2				IIIB
			LEAR				0706.3	0706.8	2				V
			LEAR				0731.3	0737.8	2				CONT
			BLEN				0803.3	0805.5	1				IIIG
			LEAR				0803.4	0808.8	1				CONT
			BLEN	0809.8	0810.8	2							DCIM
			BLEN				0827.7	0833.6	3				IIIG
			LEAR				0827.8	0830.4	2				CONT
			LEAR				0833.6	0840.7	1				CONT
			BLEN				0900.4	0900.4	2				IIIB
			LEAR				0903.9	0956.8	1				S
	0705	1700	DWIN	0954.1	0957.5	2							IIIGG
			BLEN	0954.1	0956.6	1							DCIM
	0909	1710	WEIS				0954.4	0957.4	3				IIIGG
			BLEN				0955.5	1006.5	3			II	
			WEIS				0957.5	1013.7	3			II	HARM
			LEAR				0958.2	1000.4	1			II	
			WEIS				1004.3	1008.9	3				IIIG
			BLEN				1005.6	1005.7	3				IIIB
			WEIS				1216.2	1217.3	3				IIIGG
			BLEN	1216.2	1216.9	2	1216.2	1217.1	2				IIIGG
	1319	2345	HARV				1324	2345	2				IIIN
			DWIN	1515.8	1516.1	1							IIIG
			HARV				1524	1526	2				IIIG
			HARV				1605		1				IIIG
			PALE				1742.8	1744.2	2				V
			HARV				1743	1747	3	1743	1744	3	IIIGG,V
			HARV				1807		1	1807		1	IIIG
			HARV				1824		1				IIIB
			HARV				1849	1855	2	1852	1855	2	IIIGG
			HARV				1917	1920	2				IIIGG
			PALE				1917.0	1919.2	1				CONT
			SGMR				1939.2	1945.2	2				CONT
			HARV	1941	1948	1	1938	1953	3	1940	1943	2	IIIGG
			HARV				2003	2005	2	2003	2005	2	IIIGG
			PALE				2003.2	2005.4	2				V
			SGMR				2003.4	2004.8	2				V
			HARV				2010	2036	2				IIIGG
			PALE				2031.0	0432.0	1				B
	2037	2400	CULG	2044	2121								IS,W
			CULG				2046	2400					IIIN,W
			HARV				2047	2106	3				IIIGG
			HARV				2050	2055	3	2051	2055	2	IIIGG
			CULG				2051	2339	1				IIIN
			CULG	2053	2054	2	2052.5	2055	2				IIIGG

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DAY	TIMES OF OBSERVATION START UT	TIMES OF OBSERVATION END UT	STATION	EVENTS: DECIMETRIC BAND START UT	DECIMETRIC BAND END UT	DECIMETRIC BAND INT	METRIC BAND START UT	METRIC BAND END UT	METRIC BAND INT	DEKAMETRIC BAND START UT	DEKAMETRIC BAND END UT	DEKAMETRIC BAND INT	SPECTRAL TYPE
28			PALE				2053.0	2055.4	2				V
			HARV				2135		2	2135		2	IIIB
			HARV				2140	2144	2				IIIG
			CULG	2154.5	2155	3	2154.5	2155.5	3				IIIG
			PALE				2154.6	2201.5	3				V
			SGMR				2154.7	2200.1	3				V
			HARV	2155	2200	3	2155	2200	3	2155	2200	3	IIIGG,V
			CULG	2157.5	2201	3	2157.5	2201	3	2158	2158.5	1	IIIGG,V
			CULG	2158	2234	3	2159	2213	3				CONT
			CULG							2200	2209	1	SWF
			HARV	2200	2219	3	2200	2219	3			IV	
			CULG	2310.5	2311	1	2310.5	2311	1				IIIG
			LEAR				2310.6	2311.1	1				CONT
			HARV				2311		2				IIIG
			CULG	2325.5	2326.5	3	2326	2327	2	2326.5	2327	1	IIIG
			HARV	2326	2327	3	2326	2327	3				IIIG
			PALE				2326.2	2327.2	2				V
			LEAR				2326.2	2327.2	2				V
			CULG	2353	2353.5	2	2353	2353.5	3	2353	2353.5	2	IIIG
			PALE				2353.0	2353.6	3				V
29	0000	0737	CULG	0002	0737		0002	0737					IIIN,W
			LEAR				0002.5	0024.8	1				S
			CULG	0003	0737	1	0020	0737	2	0020	0737	1	IIIG,N
			CULG	0042	0044	1							SLOW DRIFT
			LEAR				0108.9	0110.3	1				CONT
			CULG	0205	0205.5	1	0205	0205.5	3	0205	0205.5	2	IIIG
			CULG	0206	0208	1							UNCLF
			LEAR				0242.5	0246.9	1				CONT
			LEAR				0301.0	0354.2	1				S
			CULG	0303	0304	2							FAST DRIFT
			CULG	0329	0332	2	0328.5	0334	3	0329	0334	2	IIIGG
			LEAR				0329.0	0334.2	2				V
			LEAR				0359.0	1009.0	2				B
			CULG	0401	0401.5	2							IIIG
			CULG	0409.5	0410.5	2						II	
			CULG	0437	0437.5	2	0436.5	0438	3				IIIG
			CULG	0446.5	0447	2	0446.5	0447	2				IIIG
			CULG	0446.5	0455	2	0449	0454	1				CONT
			CULG	0510.5	0535.5	3							CONT
			LEAR				0511.4	0517.0	2				CONT
			CULG				0512	0512.5	2				IIIG
			CULG				0513	0517.5	2				CONT
			LEAR				0528.4	0530.1	2				V
			CULG	0528.5	0529	1	0528.5	0529.5	3				IIIG,V
			CULG	0529	0535.5	3							IIIGG
			CULG	0529	0535.5	2							SLOW DRIFT
	0541	1700	WEIS				0547.0	1705.0	2				IIIN
			CULG				0555	0556.5	3				IIIG,V
			LEAR				0555.3	0604.7	2				CONT
			WEIS				0556.3	0559.8	3				IIIGG
			CULG	0557	0601.5	2							IIIG
			CULG	0557	0601.5	1							CONT
			WEIS				0604.0	0605.3	3				IIIGG
			CULG	0636	0640								CONT,W
			CULG	0645.5	0646	1	0645.5	0646.5	3				IIIB,V
			LEAR				0645.6	0646.5	2				V
	0647	1650	BLEN	0701.3	0702.0	1							DCIM
			WEIS				0710.1	0715.3	3				IIIGG
	0700	1700	DWIN	0713.5	0714.5	2							IIIG
			BLEN	0713.6	0714.3	2	0707.2	0717.9	3				IIIGG,DCIM
			CULG	0714	0714.5	2	0714	0715	3				IIIG
			LEAR				0714.0	0715.3	2				CONT
			DWIN	0735.6	0737.5	2						IV	
			LEAR				0735.7	0746.1	2				S
			BLEN	0735.7	0737.2	2	0735.7	0739.2	3				V
			WEIS				0735.9	0739.4	3				IIIGG
			DWIN	0744.8	0749.5	2						IV	F
			BLEN	0745.2	0750.0	2	0745.2	0750.0	2			II	DCIM
			WEIS				0745.4	0746.4	3				IIIGG

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DAY	TIMES OF OBSERVATION START UT	TIMES OF OBSERVATION END UT	STATION	EVENTS: DECIMETRIC BAND START UT	DECIMETRIC BAND END UT	DECIMETRIC BAND INT	METRIC BAND START UT	METRIC BAND END UT	METRIC BAND INT	DEKAMETRIC BAND START UT	DEKAMETRIC BAND END UT	DEKAMETRIC BAND INT	SPECTRAL TYPE
29			WEIS				0746.0	0749.5	2				CONT
			WEIS				0814.0	0818.2	3				IIIGG
			LEAR				0815.7	0818.3	2				CONT
			BLEN	0815.9	0840.8	2	0815.2	0840.8	2				IIIGG,DCIM
			DWIN	0816.0	0817.1	1						IV	
			DWIN	0827.6	0828.0	1							IIIG
			WEIS				0839.5	0840.9	3				IIIGG
	0700	1700	DWIN	0858.1	0859.1	2						IV	
			BLEN	0858.2	0927.7	3	0858.2	0927.7	3				V,DCIM
			WEIS				0858.3	0859.6	3				IIIGG
			DWIN	0911.0	1015	2						IV	P
			WEIS	0911.8	0915.4	2							IIIG
			WEIS				0917.2	0919.3	3				IIIGG/V
			LEAR				0917.3	0918.9	3				CONT
			WEIS				0926.2	0928.1	3				IIIGG
			BLEN	0937.3	1023.8	3	0937.7	1023.8	3			IV	DCIM
			WEIS				0939.9	0942.4	3				IIIGG/V
			WEIS				0941.3	0948.5	2				CONT
			WEIS				0951.4	0957.6	2				IIIG
			WEIS	0952.0	1000.0	2							CONT
			WEIS				0953.2	0959.6	3				IIIGG/V
			LEAR				0954.0	0955.5	3				V
			DWIN	1041.1	1043.5	2						IV	
			WEIS				1041.3	1043.7	3				IIIGG
			BLEN	1041.3	1046.4	1	1041.5	1043.3	3				IIIGG
			BLEN				1123.3	1124.4	1				IIIG
			WEIS				1136.6	1142.6	3				IIIGG
			DWIN	1139.2	1142.1	2						IV	
			BLEN	1139.2	1146.7	2	1139.5	1142.2	3				IIIGG,DCIM
			DWIN	1144.1		2							IIIB
			BLEN	1207.7	1208.2	1	1207.7	1208.4	2				I,III
			WEIS				1216.9	1217.5	3				IIIGG,RS
			BLEN	1217.0	1217.3	2	1217.0	1217.3	3				IIIG,U
			BLEN				1231.8	1231.9	2				IIIG
			BLEN	1248.2	1256.0	1	1248.2	1300.6	2				IIIGG,DCIM
			DWIN	1249.0	1253.6	1						IV	DCIM
	1319	2345	HARV				1322	2345	1				IN
			HARV				1337	2345	2				IIIN
			HARV				1347	1348	2				IIIG
			BLEN	1349.2	1404.4	2	1347.1	1401.2	2				IIIGG,DCIM
			DWIN	1357.1	1401.5	2						IV	P
			HARV				1400	1401	2				IIIG
			BLEN	1414.4	1420.8	1	1418.7	1421.9	2				IIIGG,DCIM
			SGMR				1415.5	1415.6	2				V
			HARV				1418	1423	2				IIIG
			SGMR				1418.9	1420.7	2				V
			DWIN	1441.5	1450.0	2						IV	
			BLEN	1442.0	1449.7	2	1442.5	1448.7	3				IIIGG,DCIM
			WEIS				1442.7	1449.3	3				IIIGG
			SGMR				1442.8	1443.7	2				V
			HARV	1444	1449	2	1443	1449	2				IIIGG
			SGMR				1445.1	1447.0	2				V
			BLEN	1504.1	1505.2	1							DCIM
			HARV				1515	1521	2				IIIG
			BLEN				1555	1620	2				I
	1702	1711	WEIS										
			HARV				1712	1713	2				IIIG
			PALE				1750.7	1750.9	1				III
			HARV				1751		2	1751		2	IIIG
			HARV				1813	1823	2	1813	1816	2	IIIGG
			PALE				1814.4	1816.8	1				V
			PALE				1850.7	1850.9	1				III
			HARV				1950	1955	3	1950	1951	3	IIIGG
			PALE				1950.3	1951.4	2				V
			SGMR				1950.3	1950.6	2				V
	2037	2400	CULG	2040	2332	1							IIIG,N
			CULG				2041	2120					IIIS,W
			HARV	2042		2	2042	2111	2				IIIGG
			CULG				2048	2323	1				IIIN
			CULG	2048	2049	2							IIIG

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29			PALE				2046.6	0432.0	1				B
			CULG	2129.5	2132.5	2	2128	2129	2				IIIG
			HARV	2130	2132	2	2128	2132	2				IIIG
			HARV				2148	2149	2				IIIB
			HARV				2202	2207	2				IIIGG
			HARV				2225	2226	2				IIIG
			CULG				2225.5		2				IIIB
			CULG				2239	2325					IIIS,W
			HARV				2239	2242	2				IIIG
			CULG				2240	2337	2				IIIN
			LEAR				2259.0	2344.6	1				S
			HARV	2300		1	2259	2300	2				IIIG
			HARV				2322	2323	2				IIIG
			HARV				2337		2				IIIG
			HARV				2344	2345	2				IIIB
			CULG	2344.5		1	2344.5		2	2344.5		1	IIIB
30	0000	0732	CULG	0001	0657	1							IIIN
			CULG				0006	0020	1				IIIG,N
			LEAR				0012.9	0013.5	1				CONT
			CULG	0135	0136	2	0135	0136	3	0135	0136	2	IIIG
			LEAR				0135.2	0136.2	3				V
			CULG	0205.5	0206.5	2	0205.5	0206.5	3	0205.5	0206.5	3	IIIG
			LEAR				0205.6	0206.8	3				V
			PALE				0205.6	0211.4	3				CONT
			CULG	0209	0209.5	3	0209	0210	3	0209	0209.5	3	IIIG,V
			LEAR				0209.0	0211.5	3				CONT
			CULG	0252	0314	2	0210.5	0314	2	0210.5	0314	2	IIIG,N
			CULG	0322	0322.5	2							FAST DRIFT
			CULG				0427	0437	1				IIIN
			CULG	0429	0430	2	0429	0430	3	0429	0429.5	2	IIIG
			LEAR				0429.2	0430.4	2				V
			LEAR				0649.4	0651.2	2				V
	0540	1712	WEIS				0649.4	0651.2	3				IIIGG
			CULG	0650	0651	2	0649.5	0651	3				IIIG
	0645	1655	BLEN	0650.0	0659.3	2	0650.0	0650.9	3				IIIGG,DCIM
	0656	1345	DWIN	0656.0	0658.0	2							IIIG
			BLEN	0735.3	0735.7	1							DCIM
			DWIN	0735.3	0735.7	1							IIIG
			BLEN	0750.0	0755.7	1	0754.7	0757.8	2				IIIG,RS
			WEIS				0754	1630	2				IIIN
			BLEN				0811.8	0814.2	2				IIIG
			BLEN	0830.7	0834.2	1							DCIM
			BLEN	0925.3	0925.7	1							DCIM
			DWIN	0925.5	0925.7	1							IIIG
			DWIN	1003.8	1005.5	1							IIIG
			BLEN	1003.9	1005.5	1							DCIM
			BLEN	1124.1	1124.3	1							DCIM
			BLEN				1211.4	1312	2				I,DC
			BLEN	1300	1420	2	1300	1420	2				C
	1319	2345	HARV				1319	2345	1				IN
			HARV				1412	2345	2				IIIN
			BLEN	1432.1	1443.7	1	1432.1	1441.7	2				IIIGG,DCIM
			BLEN				1439.7	1655 D	2				I,DC,N
			HARV	1440	1442	1	1440	1442	3	1440	1442	2	IIIG,V
			SGMR				1440.4	1441.9	3				V
			WEIS				1441.2	1443.2	3				IIIGG
			SGMR				1454.7	1455.6	1				V
			HARV				1455	1458	2				IIIG
			WEIS				1524.9	1529.9	3				IIIGG
			BLEN	1524.9	1539.1	2	1524.9	1529.7	3				IIIGG,DCIM
			HARV	1525	1530	1	1525	1530	3	1525	1530	2	IIIGG
			SGMR				1525.0	1526.5	3				V
			SGMR				1529.2	1529.5	2				III
			HARV	1611	1623	1	1611	1623	3	1615	1622	2	IIIGG,V
			BLEN	1611.2	1636.7	2	1611.2	1636.7	3				IIIGG,DCIM
			SGMR				1613.5	1622.8	3			IV	
			WEIS				1614.7	1622.8	3				IIIGG
			HARV				1629	1639	3	1629	1639	2	IIIGG
			WEIS				1635.7	1639.3	3				IIIGG

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DAY	TIMES OF OBSERVATION START UT	TIMES OF OBSERVATION END UT	STATION	EVENTS DECIMETRIC BAND START UT	DECIMETRIC BAND END UT	DECIMETRIC BAND INT	METRIC BAND START UT	METRIC BAND END UT	METRIC BAND INT	DEKAMETRIC BAND START UT	DEKAMETRIC BAND END UT	DEKAMETRIC BAND INT	SPECTRAL TYPE
30			SGMR				1635.9	1636.6	2				V
			HARV				1726	1734	1	1726	1733	1	IIIGG
			HARV				1801		2				IIIB
			HARV	1841	1842	1	1841	1847	3	1841	1847	3	IIIGG,V
			SGMR				1841.1	1843.4	3				V
			PALE				1841.2	1846.8	3				CONT
			SGMR				1844.3	1844.7	2				III
			HARV	1850	1852	2	1848	1859	2				IIIGG
			PALE				1851.8	0434.0	1				B
			HARV				1904	1906	2				IIIG
			HARV				1920		2				IIIG
			SGMR				1925.8	1927.7	2				V
			HARV				1926	1927	3	1926	1927	2	IIIG,V
			HARV				1953		3				IIIG
			SGMR				1959.5	2001.0	1				V
			PALE				1959.5	2007.0	2				CONT
			HARV	2000		2	2000	2002	3	2000	2001	3	IIIG,V
			SGMR				2005.7	2007.1	2				III
			HARV	2006	2007	1	2005	2007	3	2005	2007	3	IIIG
			HARV				2018	2019	2				IIIGG
			HARV				2027	2033	3				IIIGG
			SGMR				2039.7	2040.6	2				V
			HARV				2040		2	2040		2	IIIG
	2036	2400	CULG	2040	2040.5	1	2039.5	2040.5	2				IIIG
			CULG	2044.5	2050.5	1	2045	2051	1				IIIS
			HARV	2045	2050	1	2045	2050	3	2047	2050	2	IIIGG
			PALE				2048.2	2050.2	2				V
			SGMR				2049.2	2050.1	2				V
			CULG	2049.5	2050	2	2049	2050	3				IIIG
			HARV				2110		2				IIIG
			CULG				2110		1				IIIB
			CULG				2116	2116.5	1				UNCLF
			CULG				2135	2314					IIIN,W
			HARV				2230	2232	2				IIIG
			CULG				2230.5	2232.5	1				IIIG
			HARV				2235	2250	3				IIIGG
			CULG	2236	2241	1	2237.5	2242	2				IIIGG
			PALE				2236.8	2350.0	2				S
			CULG				2237	2251	1				IIIS
			CULG				2237	2251	2				II
			LEAR				2247.0	1007.0	1				B
			HARV				2305	2313	2				IIIG
			CULG	2325	2331	1							FAST DRIFT
31	0000	0736	CULG	0029	0331	1	0029	0331	2	0029	0331	2	IIIG,N
			LEAR				0049.4	0053.2	3				V
			CULG	0049.5	0056	3	0049.5	0052.5	3	0049.5	0052	3	IIIGG,V
			PALE				0049.7	0052.5	3				CONT
			CULG	0202	0203	2	0202	0203.5	3	0202.5	0203.5	3	IIIG,RS
			PALE				0202.2	0203.0	2				V
			LEAR				0202.3	0203.4	2				CONT
			CULG	0206.5	0207.5	1	0206.5		3	0207	0207.5	2	IIIG
			LEAR				0206.8	0207.6	2				CONT
			PALE				0206.8	0211.0	2				CONT
			CULG	0439	0450		0423	0521					IN,W
	0537	1338	WEIS				0558	1558	2				IIIN
			LEAR				0558.4	0559.3	2				V
			CULG				0558.5		2				IIIB
	0605	1700	BLEN				0605 E	1700 D	1				I,DC,N
			BLEN	0630.5	0631.3	1	0630.8	0636.0	3				IIIGG,DCIM
			CULG	0630.5	0632	2	0630.5	0631.5	2				IIIG
			LEAR				0630.6	0631.7	2				CONT
			WEIS				0630.8	0635.8	3				IIIGG
			CULG	0633	0634.5	2	0633	0635	2				IIIG
			LEAR				0633.1	0635.0	2				CONT
			CULG				0643.5	0644	1				IIIB,U
			BLEN	0705.6	0708.3	2							DCIM
			BLEN	1027.2	1029.2	1	1027.2	1029.2	2				IIIGG,RS
	0722	1700	DWIN	1028.5	1029.1	1							IIIG
			DWIN	1123.6	1124.5	2							IIIG

SOLAR RADIO EMISSION
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MARCH 1980

DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
31			BLEN	1123.7	1130.3	2							DCIM
			DWIN	1129.3	1130.1	2							IIIG
			BLEN				1258.7	1259.2	2				IIIG
			WEIS				1258.7	1259.8	2				IIIGG
	1319	2345	HARV				1319	2345	2				IN
	1342	1713	WEIS										
			HARV				1426	2345	2				IIIN
			HARV				1509	1510	2				IIIB
			BLEN				1532.9	1535.3	1				DCIM
			DWIN	1533.1	1533.7	1							IIIG
			HARV				1548		2				IIIG
			HARV				1551		1				IIIG
			HARV				1558		2				IIIB
			PALE				1648.0	0434.0	1				B
			HARV				1750		2				IIIB
	2036	2400	CULG	2038	2055								IN,W
			HARV				2054	2055	2				IIIG
			CULG				2054						IIIB,W
			CULG				2142	2144					IIIG,W
			CULG				2144		2				IIIB
			HARV				2144		1				IIIG
			CULG				2215.5	2216					UNCLF
			CULG				2333.5		1				IIIB
			LEAR				2333.7	2333.9	1				III

The symbols used in connection with the spectral type in describing the important bursts are as follows:

B = Single burst
G = Small group (< 10) of bursts
GG = Large group (> 10) of burst
C = Underlying continuum (particularly with type I)
S = Storm in the sense of intermittent but apparently connected activity
N = Intermittent activity in this period
U = U-shaped burst of Type III

RS = Reverse slope burst
DP = Drifting pairs
DC = Drifting Chains
H = Herringbone
W = Weak
P = Pulsations
CONT = Continuum
UNCLF = Unclassified activity
DCIM = Fast drift

COSMIC RAY INDICES

(Neutron Monitors)

MARCH 1980

Mar 1980	THULE Average (cts/h)/100	ALERT Average (cts/h)/100	DEEP RIVER Average (cts/h)/300	CALGARY Average (cts/h)/100	KIEL Average (cts/h)/100	CLIMAX Average (cts/h)/100	TOKYO Average (cts/h)256	HUANCAYO Average (cts/h)/100
1	4265	6986.4	6626.1		5950.1		3615.6	
2	4288	7039.8	6650.5		6006.6		3626.4	
3	4299	7037.0	6667.4		6034.1		3625.2	
4	4280	6989.6	6607.9		5989.2		3606.4	
5	4263	6961.0	6581.5		5967.4		3604.5	
6	4196	6844.7	6491.4		5887.0		3573.5	
7	4198	6848.0	6473.0		5857.0		3568.2	
8	4196	6848.5	6468.5		5843.9		3574.9	
9	4203	6862.7	6466.5		5828.4		3562.5	
10	4205	6864.5	6477.8		5840.3		3566.5	
11	4214	6870.4	6490.1		5848.5		3578.4	
12	4241	6912.6	6520.8		5877.6		3592.0	
13	4231	6922.0	6529.4		5894.3		3596.8	
14	4240	6940.7	6531.6		5899.1		3592.0	
15	4264	6977.8	6566.6		5922.8		3608.7	
16	4277	6983.5	6583.4		5940.4		3608.1	
17	4292	7019.5	6581.3		5963.3		3613.0	
18	4307	7027.6	6617.6		5971.7		3619.8	
19	4298	6994.1	6617.3		5966.0		3616.7	
20	4220	6897.9	6489.9		5898.1		3580.7	
21	4222	6893.9	6554.8		5966.4		3621.5	
22	4247	6924.4	6561.1		5957.3		3606.3	
23	4261	6980.5	6609.1		5963.8		3621.1	
24	4274	7017.3	6607.3		5987.9		3618.0	
25	4270	5989.2	6598.2		5976.0		3608.8	
26	4281	7012.9	6592.3		5988.8		3624.7	
27	4275	7019.8	6629.3		5996.7		3624.9	
28	4306	7061.9	6674.1		6017.0		3625.8	
29	4311	7065.2	6657.6		6025.5		3629.7	
30	4320	7071.0	6675.7		6008.1		3629.5	
31	4256	6970.1	6596.6		5925.7		3594.1	
MEAN	4258	6962.4	6574.0		5941.9		3604.3	

Data not available at time of publication.

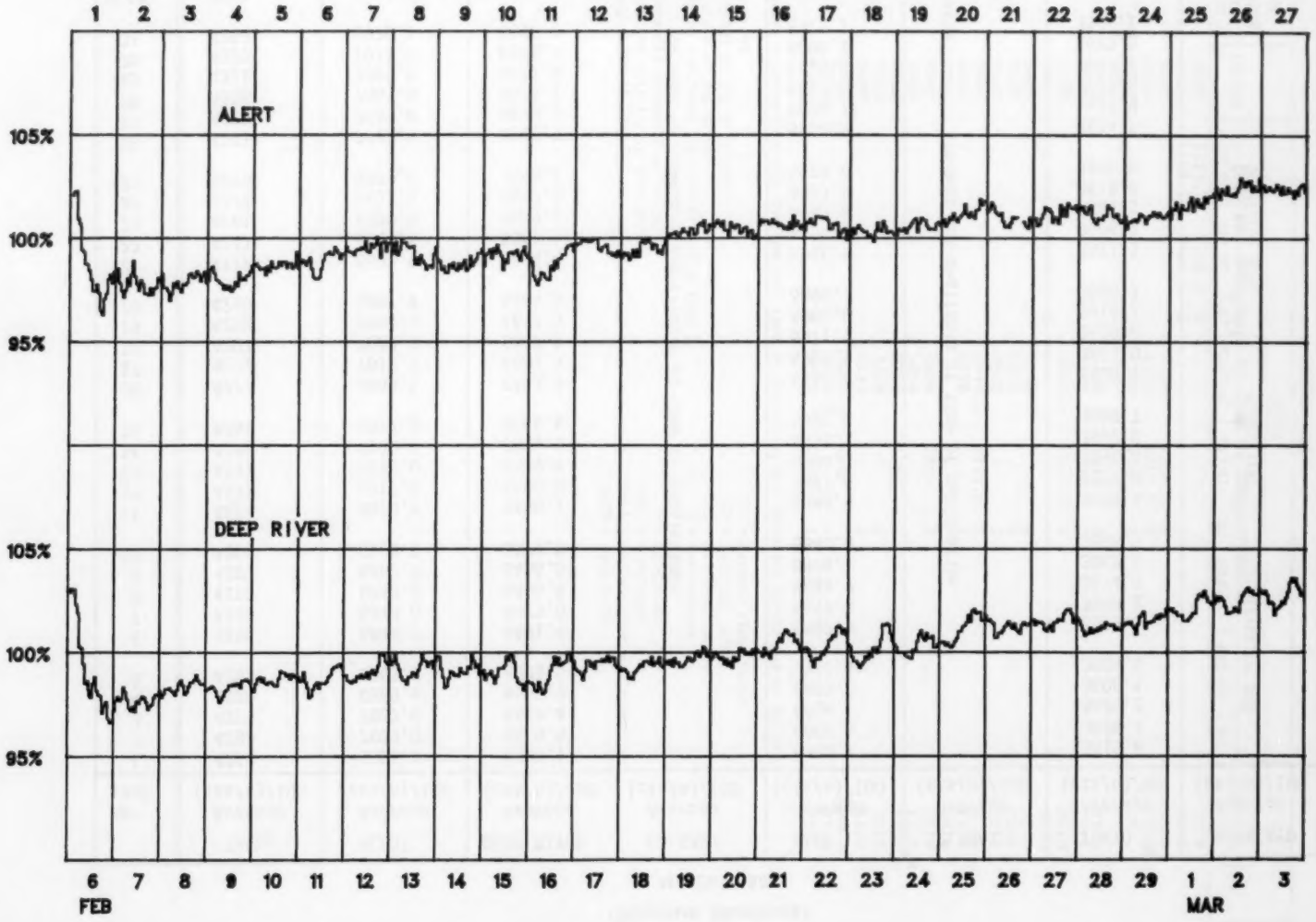
Data not available at time of publication.

Data not available at time of publication.

For less than 24-hour coverage, parentheses enclose the number of hours for which data are available. For Climax and Huancayo, parentheses enclose the number of section hours whenever the sum of both sections falls below 40 hours.

COSMIC RAY INDICES
(Neutron Monitor)

Bartels Rotation 2003 (February 1980–March 1980)

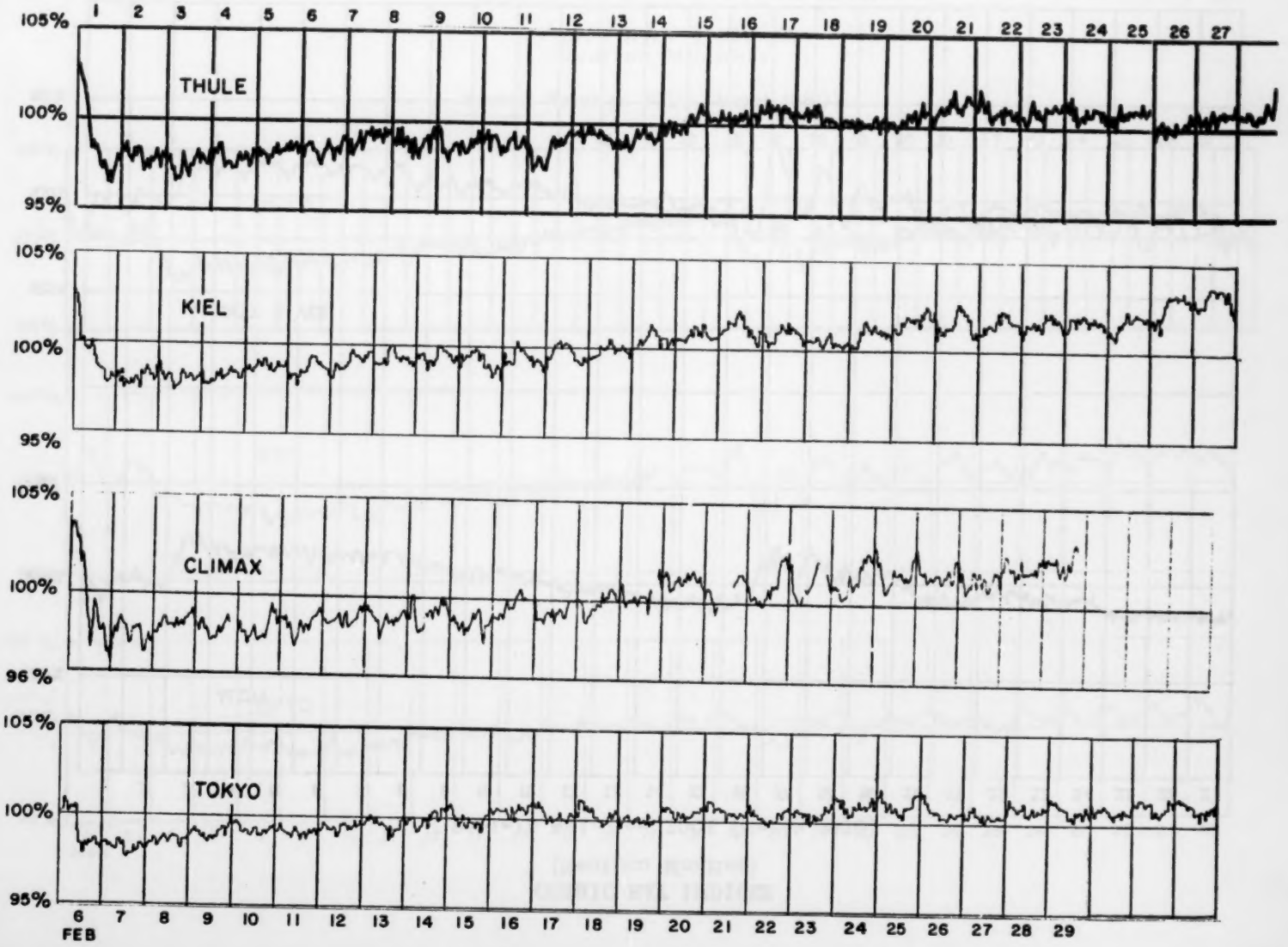


COSMIC RAY INDICES
(Neutron Monitors)

Bartels Rotation 2003 (February 1980)

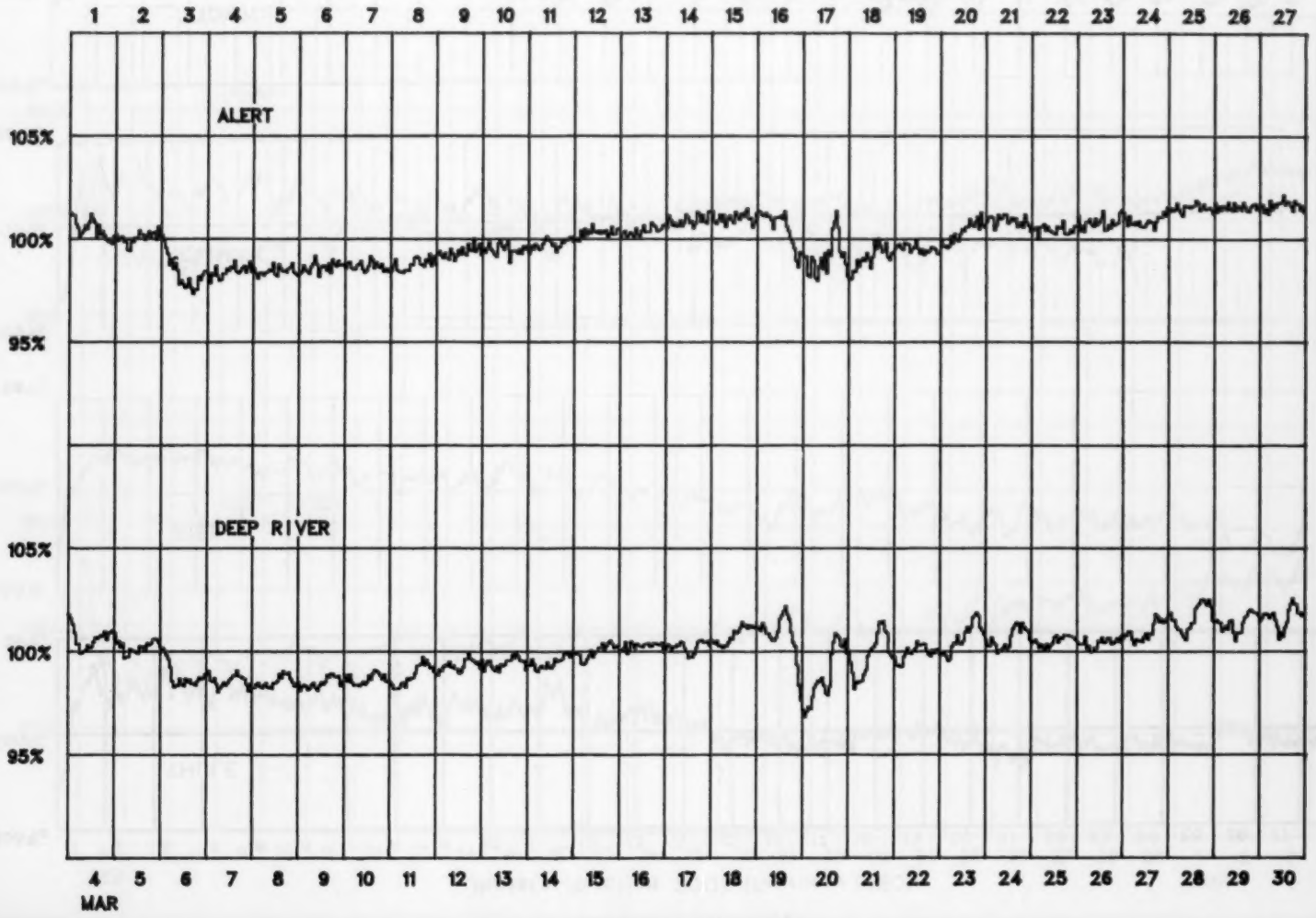
COSMIC RAY INDICES
(Neutron Monitors)

Bartels Rotation 2003 (February 1980)



COSMIC RAY INDICES
(Neutron Monitor)

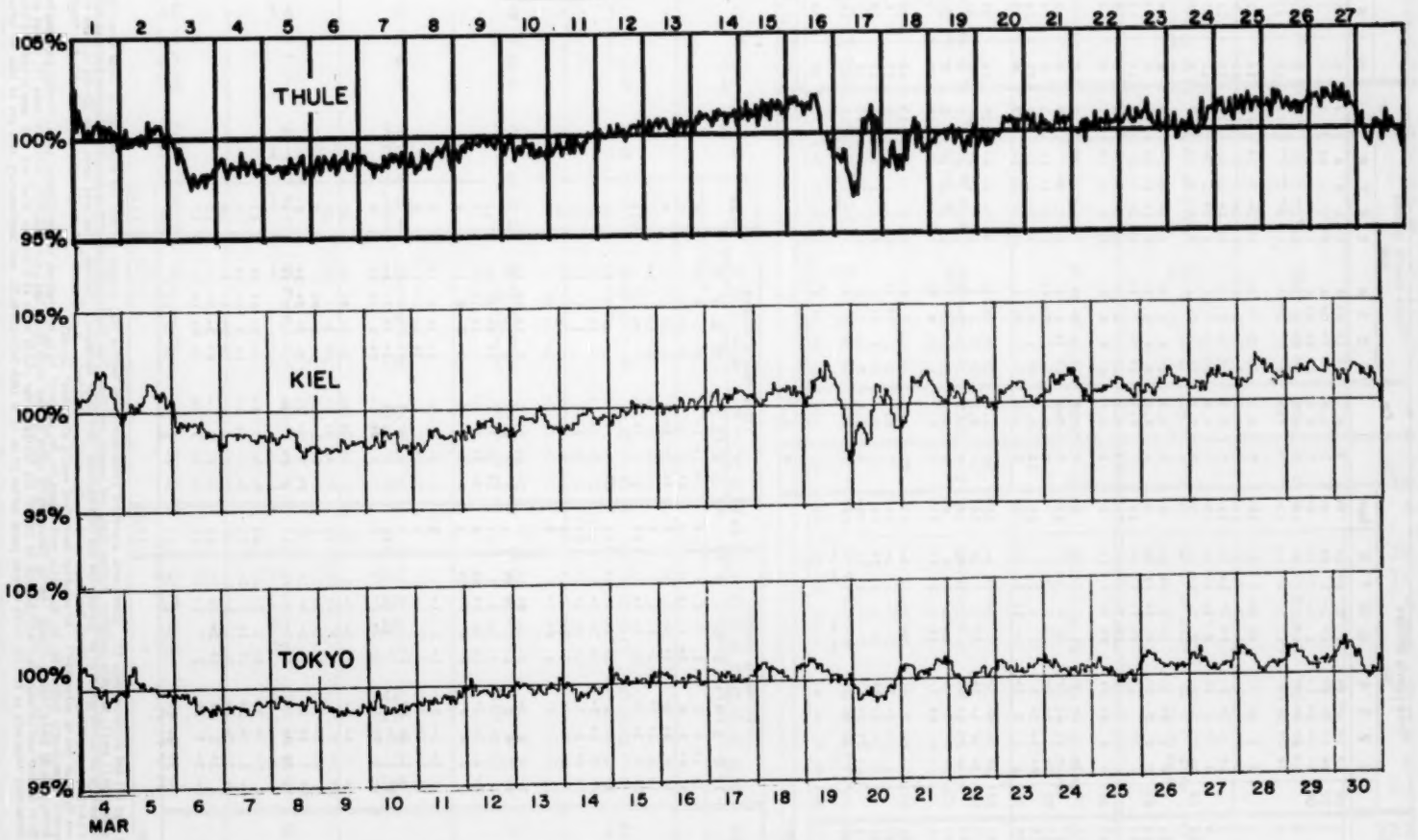
Bartels Rotation 2004 (March 1980)



MAR

COSMIC RAY INDICES
(Neutron Monitors)

Bartels Rotation 2004 (March 1980)



GEOMAGNETIC ACTIVITY INDICES

MARCH 1980

Day	Three-Hourly Indices Kp									Ap	Cp	Three-Hourly Indices Km								Am	aa			
		1	2	3	4	5	6	7	8	Sum			1	2	3	4	5	6	7	8		N	S	M
1	Q4	1+	1+	1-	0+	1	1	0+	0+	6+	3	0.1	1+	1+	0+	0	1-	1	0	0	4	5	6	7 4 CC
2	Q3	0+	1-	0+	0+	1-	1-	1	0+	4+	3	0.0	0+	0+	0+	0	0+	1-	1	0+	3	3	3	2 4 CC
3	Q0	1-	0+	0+	1-	1	3-	2-	1+	9-	5	0.2	0+	0+	0+	0	1+	3-	1+	1+	7	8	5	3 10 CC
4		1-	0+	1+	2+	1+	1	1	2	10	5	0.2	1-	0+	1	2+	1+	1	1	2-	8	9	7	8 9 CC
5		2+	3-	2	3-	1	1-	1-	1-	13-	7	0.3	2	2	1+	3-	1+	0+	1	1	11	10	13	19 4 KK
6		2	2	2+	3	2+	2+	2	2-	18-	9	0.5	2	2+	2+	3-	2+	2+	2-	1+	17	14	19	20 13 C
7		2+	2+	1	2-	1+	2-	2	2	14+	7	0.3	2	2-	2-	2-	1	1+	2-	2	12	11	8	11 9 CC
8		1+	2+	2+	2	1+	2-	1+	1+	14-	6	0.3	1+	2-	2	2	1+	1+	1+	1+	10	11	11	13 9 CC
9		2	2-	3	1+	2	2+	1	1+	15-	7	0.4	2-	1+	2	1	2	2+	1	1+	12	12	13	13 12 CC
10	Q9	0+	1+	1-	2	2	1	1-	1-	9-	4	0.1	1-	1+	1+	2	2	1-	0+	1-	8	8	10	11 7 CC
11		2	0	0+	3-	2-	1	0+	1-	9-	4	0.2	2-	0	0	2+	2	1+	0+	1-	8	8	9	8 9 CC
12	Q2	0	0	0	0	0	1-	1+	0+	2+	1	0.0	0	0	0	0	0	1-	1+	0+	2	4	3	3 4 CC
13		1	1+	3	1	2-	1-	2	2+	13	7	0.3	1+	1+	3	1-	2-	1-	2-	2	12	13	12	11 14 CC
14		2	2+	1	1-	1+	2-	1-	0+	10	5	0.2	2-	2-	1	1-	1	2-	1	0	8	8	10	9 9 CC
15	Q1	0	0	0+	0+	0+	0+	0	1+	3-	2	0.0	0	0	0	0	0	0	0	1+	1	4	2	2 4 CC
16	Q8	2-	1	1-	2-	1	1	1-	2-	9+	4	0.2	1+	1-	1-	2	1-	1	1-	2-	8	9	7	10 6 CC
17		1+	1+	1+	2+	2-	1	1	1-	11-	5	0.2	1+	1+	1	2	2-	1	1-	1	9	8	8	10 6 CC
18	Q5	1+	1	1-	1-	1	1	1-	1-	7	4	0.1	1	1	0+	0+	1-	1-	1-	1-	5	5	4	4 5 CK
19		0+	1-	3+	3	3	3	2-	1	16	10	0.5	0+	1	4-	3	3	3-	2-	1-	19	19	18	21 16 K
20	Q6	1	1	1	1+	1-	1+	2-	1+	9+	4	0.2	1-	1	0+	1	0+	1+	2-	1+	7	8	7	7 9 C
21	D3*	2+	3+	4-	3-	3	3-	4+	4-	26-	18	1.0	2+	3-	3+	3-	3-	3-	4-	4-	29	34	32	25 41
22	D4*	3-	3+	4-	3+	4+	3	2-	2+	24+	16	0.9	2+	3-	3	3	4-	3	1+	2+	25	29	21	21 30
23		2+	3	1	1+	1-	1	1	0	10+	6	0.2	2-	2-	1-	1+	1	1	1	0	7	9	7	11 5 CK
24	Q7	0+	1-	2-	2-	1+	2-	0+	1	9-	4	0.1	0+	1	2-	2-	1+	2-	0+	1+	8	8	11	8 11 CC
25		1-	0	0+	1	1+	2-	2	4-	11-	6	0.3	1	0+	0	0+	1	1+	2	3+	10	16	5	4 18 K
26	D1	5-	6-	4	4	4+	2+	3	4-	32-	30	1.3	4+	5-	3	4-	4-	2	3-	3	43	42	35	47 30
27		3	1+	2-	2-	2	1+	1	2-	14-	7	0.3	3-	1	1+	1+	1	1	1	2-	10	17	8	12 13 C
28		2-	3-	2+	1+	2-	1	1	2+	14	7	0.3	2+	2	2+	1	2-	1	1	2	11	12	10	13 10 CC
29		2+	2+	3-	1	1	2	2	2+	16-	8	0.4	2	2+	2	1	1	2	2	2	13	16	11	15 12 C
30	D5*	3	4-	3+	2-	2	1	1-	3	18+	11	0.6	3-	3-	3	2	2-	1-	1-	3+	18	23	10	20 14
31	D2	4-	4	4	4	4-	3	2	3+	28-	21	1.1	3	4-	3+	4-	3	3-	2	3+	31	30	31	36 25
Mean											8	0.35									12.1	13.4	11.5	12.5

Day	Three-Hourly Indices Kn								An	Three-Hourly Indices Ks								As
	1	2	3	4	5	6	7	8		1	2	3	4	5	6	7	8	
1	1+	1+	0	0	1	1	0	0	4	1+	1+	1-	0	0+	1-	0	0+	4
2	0	0+	0	0	0+	1-	1+	0+	3	0+	0	1-	0	0+	0+	1-	1-	3
3	1-	0	0+	0+	1+	3-	2	2-	8	0+	0+	0+	0	1	2+	1	1	6
4	1-	0	1+	2+	2-	1	1	2	9	1-	0+	1	2+	1+	1-	1-	1+	7
5	2+	2	2-	3-	2-	1-	1+	1	12	2-	2	1+	3-	1	0+	1-	1	10
6	2-	2	2	3-	2	2+	2-	1+	15	2+	3-	3-	2+	2+	2+	2-	2-	18
7	2-	2-	1+	2-	1+	2-	2-	2	12	2	2-	2-	1+	1-	1+	2-	2	12
8	1+	2-	2	2	1+	1+	1+	2-	11	1	2-	2-	2	1	1	1	1+	10
9	2-	1+	2	1+	2	3-	1+	1+	12	2-	1+	2	1-	2	2+	1	1+	11
10	1-	1	1	2	2	0+	1-	1	8	1	2-	1+	2-	2-	1-	0+	1-	8
11	2-	0	0	3-	2-	1+	0+	1-	8	2-	0+	0+	2	2	1+	0+	1-	8
12	0	0	0	0	0	1	1+	0+	2	0	0	0	0	0	1-	1+	0+	2
13	1-	1+	3-	1-	2-	1-	2	2	11	1+	1+	3	1-	1+	0+	2-	2-	12
14	2-	2	1-	1-	1+	2-	1+	0+	8	2-	2-	1	1-	1	1+	1-	0	7
15	0	0	0	0	0	0	0	1+	2	0	0	0	0	0	0	0	1+	1
16	1+	1-	1-	2	1-	1	1-	2	8	1	1-	1-	2-	1-	1-	1	1+	7
17	1+	1	1+	2	2	1	1-	1	9	1+	1+	1	2	1+	1-	1-	1	8
18	1-	1	0+	0+	1+	1	1-	1	6	1+	1	0+	0	0+	0+	0+	1-	4
19	0+	1	3+	3	3+	3-	2-	1-	20	0+	1	4-	3	3-	2+	2-	1-	18
20	1-	1	0+	1+	1-	2-	2-	1+	8	1-	1	0+	1-	0+	1	1+	1+	6
21	2+	3-	4-	3-	3	3-	4-	4	31	2	2+	3+	3-	3-	3-	4-	4-	28
22	2+	3-	3	3	4	3	1+	2+	26	2+	3-	3-	3-	4-	3-	1	2+	23
23	2	2	1-	1+	1+	1+	1+	0	9	2-	2-	1-	1+	1-	1-	0+	0	7
24	0+	1	1+	2	1+	2-	0+	1+	9	0+	1	2-	2-	2-	2-	0+	1+	8
25	1	0+	0+	0+	1+	2-	2	4-	12	1	0+	0	0+	1-	1	2	3+	9
26	4	5-	3+	3+	4-	2	3	3	43	5-	5-	3	4-	4-	2-	2+	3+	43
27	3-	1	1+	2-	1+	1+	1	2-	11	3-	1-	1+	1+	1-	1	1-	1+	8
28	1+	2	2+	1+	2	1	1+	2	12	2-	2	2	1-	1+	1-	1	2	10
29	2	2+	2	1+	1+	2+	2+	2+	15	2-	2	2	1-	0+	2-	2-	2-	11
30	3-	3-	3	2+	2	1	1-	3+	19	3-	3-	3	1+	2-	0+	1-	3	17
31	3	3+	3+	4-	3+	3-	2	3+	34	3-	4-	3	4-	3-	3-	2-	3	29
Mean									12.8									11.5

Quiet days (Q) and disturbed days (D), geomagnetic planetary three-hour-range indices (Kp) (integers alone are equivalent to those normally given with a small zero), magnetic character figures (Cp), and average amplitude (Ap) (unit 2 nT) prepared by Geophysikalisches Institut at the University of Göttingen, F.R. of Germany for the International Service of Geomagnetic Indices. Ten most quiet days [Q1-Q0(10)] and five most disturbed days [D1-D5] are ordered from most quiet or disturbed, respectively. A or K means "not really quiet" (A = "Ap>6", K = "Ap≤6 but one Kp≥30 or two Kp values>3-"). An asterisk means "not really disturbed" (Ap<20).

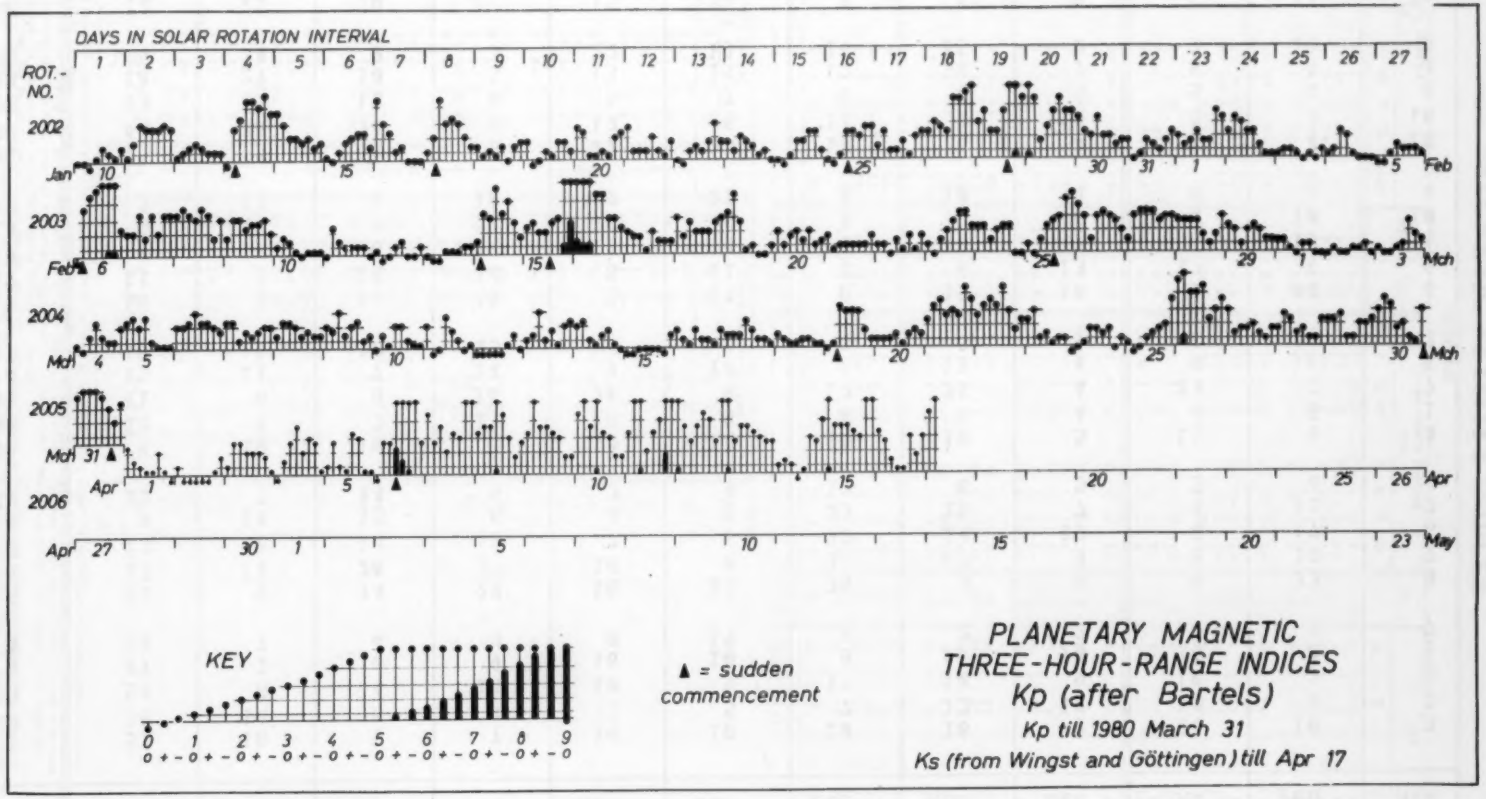
Geomagnetic three-hourly indices Km, Kn, Ks, daily mean values Am, An, As (unit 1nT), and indices aa are prepared by M. Menvielle of the Institut de Physique du Globe, Paris, France. For aa indices daily north (N) and south (S) values, and half-daily antipodal mean (M) values are given. Quiet 24-hour and 48-hour intervals centered on 1200 UT are indicated for really quiet as C and for quiet but with some slightly disturbed three-hour intervals as K. The first hundred years series of aa is in IAGA Bulletin No.33, and complementary data are in IAGA Bulletin No.39.

DAILY AVERAGE INDICES Ap

DAILY AVERAGE INDICES Ap

DAY	1979 APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	1980 JAN	FEB	MAR
1	33	18	5	7	16	10	10	16	9	24	10	3
2	36	14	6	4	11	5	7	12	11	12	9	3
3	54	6	4	14	10	9	13	10	9	18	3	5
4	47	7	6	9	16	10	9	10	16	16	4	5
5	52	7	4	9	8	17	6	2	7	12	3	7
6	12	6	34	22	18	15	36	3	6	8	33	9
7	12	11	26	27	10	6	32	12	4	5	12	7
8	12	8	14	9	7	6	37	14	10	6	17	6
9	9	14	15	6	6	5	23	19	7	3	11	7
10	12	7	14	6	7	9	17	6	5	3	4	4
11	6	19	10	4	10	14	10	10	5	11	4	4
12	15	9	7	11	18	8	8	7	4	4	3	1
13	11	8	8	16	76	8	12	35	4	23	2	7
14	15	11	7	14	7	10	6	13	4	9	18	5
15	18	11	10	15	4	8	8	3	9	6	33	2
16	16	5	16	11	5	14	8	12	10	9	40	4
17	11	3	14	14	8	11	4	8	13	13	6	5
18	6	11	6	15	11	64	3	4	7	4	10	4
19	6	24	6	11	35	6	5	7	6	4	10	10
20	2	13	8	18	42	22	6	10	4	6	6	4
21	21	13	15	9	22	23	10	6	4	6	4	18
22	45	36	24	6	12	6	14	2	15	5	4	16
23	23	11	19	6	5	7	6	4	3	5	9	6
24	14	27	10	5	13	15	12	24	7	5	6	4
25	126	34	9	3	22	19	14	15	2	7	13	6
26	12	25	20	17	15	19	8	4	10	6	14	30
27	27	17	10	23	12	15	6	4	12	24	14	7
28	31	11	4	10	10	16	9	2	16	27	10	7
29	47	30	7	24	77	15	11	4	32	26	7	8
30	26	10	10	9	15	18	5	15	20	10		11
31		6		3	12		5		9	5		21
MEAN	25	14	12	12	18	14	12	10	9	10	11	8

GEOMAGNETIC ACTIVITY INDICES



PRINCIPAL MAGNETIC STORMS

MARCH 1980

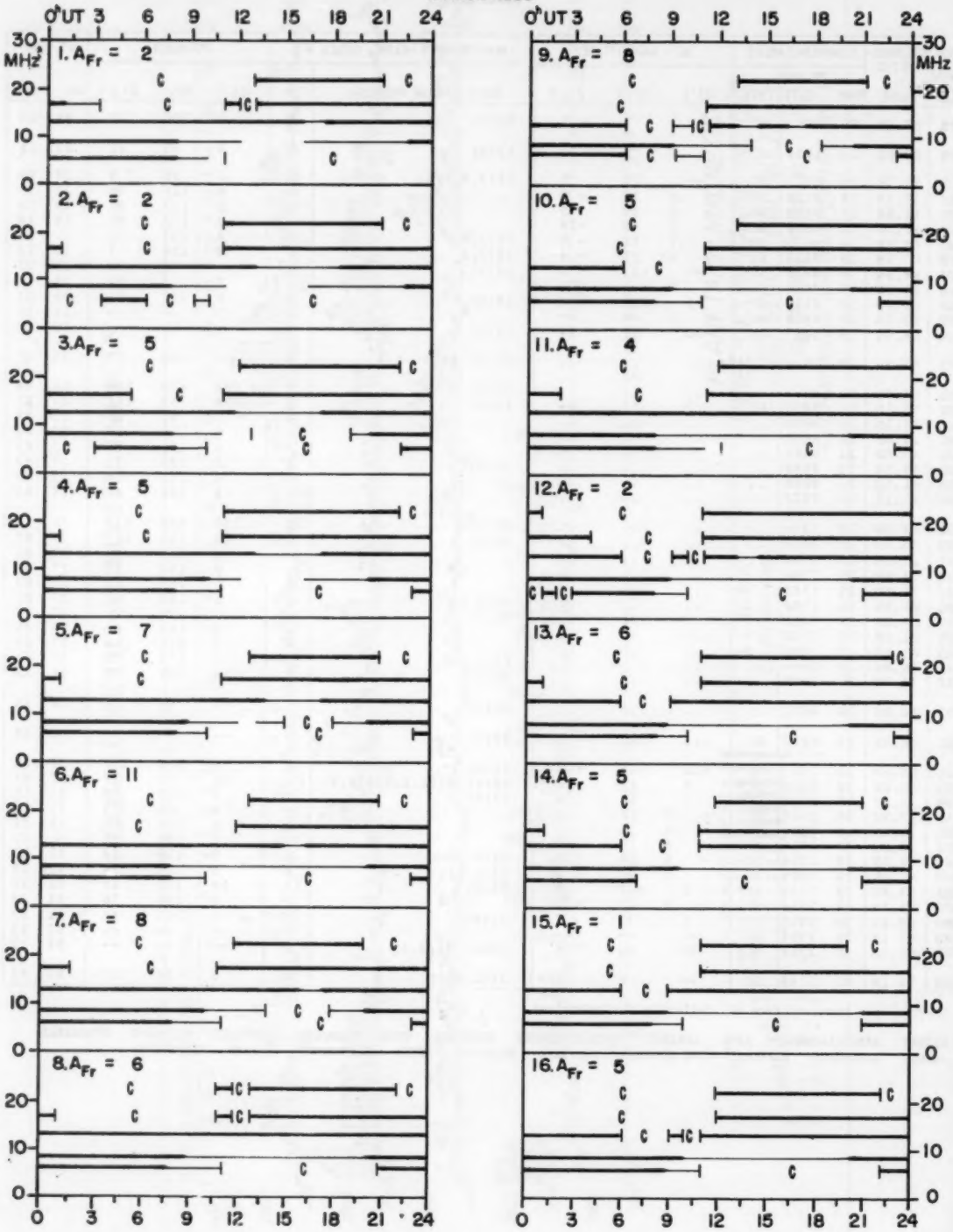
OBS. 3 letter IAGA code	GEOMAG-NETIC LATI-TUDE	COMMENCEMENT DAY	hr min (UT)	TYPE	SC - AMPLITUDES D(')	H(γ)	Z(γ)		MAXIMUM 3 HOUR - INDEX K DAY(3 HOUR PERIOD)	K	RANGES D(')	H(γ)	Z(γ)	UT END DAY	HOUR
HYB	07.6N	06	0052	SC	- .1	7	- 1		06(2)	4	3	109	22	06	22
HYB	07.6N	12	1652	SC	- .1	5			13(3)	4	4	95	21	13	18
HON	21.1N	19	0617	SC	--	13	5		19(3,4,6)	3	1	29	5	20	00
JAI	17.3N	19	0618	SC	- .8	33	- 6			-	4	116	36	19	19
SHL	14.6N	19	0618	SC	- .2	30	5			-	2	121	35	19	19
UJJ	13.5N	19	0618	SC	- .5	40	-10			-	3	130	35	19	19
ABG	09.5N	19	0618	SC	- .7	34	- 9		19(3,4)	5	4	137	36	19	19
HYB	07.6N	19	0618	SC	- .4*	39	- 4	*	19(3)	5	4	158	7	19	22
GUA	04.0N	19	0618	SC*	--	+27	- 8		19(3)	4	--	70	10	19	21
ANN	01.5N	19	0618	SC	- 1.9	--	21			-	5	..	47	19	19
HUA	00.6S	19	0617	SC	1	17	4		19(5)	5	8	282	62	19	23
TRD	01.1S	19	0618	SC	.1	--	--			-	2	--	--	19	19
KGL	56.5S	19	0617	SC	-32	29	14		19(3)	3	--	--	--	19	18
HYB	07.6N	20	1530	..	..	..	..		21(7) 22(5)	5	5	148	23	23	07
COL	64.6N	21	04--	..	..	..	..		22(4)	6	108	870	530	22	20
NEW	55.1N	21	0057	SC	2	13	--		22(5)	5	24	53	110	22	21
JAI	17.3N	21	0800	..	..	..	..			-	7	91	29	23	03
SHL	14.6N	21	0800	..	..	..	..			-	6	116	37	23	03
UJJ	13.5N	21	0800	..	..	..	..			-	5	101	26	23	03
ABG	09.5N	21	0800	..	..	..	..		21(3,7)	5	5	105	33	23	03
ANN	01.5N	21	0800	..	..	..	..			-	4	171	54	23	03
TRD	01.1S	21	0800	..	..	..	..			-	3	201	99	23	03
COL	64.6N	25	23--	..	..	..	..		26(5)	6	156	880	520	26	16
NEW	55.1N	25	20--	..	..	..	..		26(2)	5	24	114	187	27	03
JAI	17.3N	25	1700	..	..	..	..			-	8	109	35	27	03
SHL	14.6N	25	1700	..	..	..	..			-	8	134	39	27	03
UJJ	13.5N	25	1700	..	..	..	..			-	6	103	32	27	03
ABG	09.5N	25	1700	..	..	..	..		26(3,5)	4	5	106	40	27	03
HYB	07.6N	25	1400	..	..	..	..		26(5)	4	5	126	26	27	02
ANN	01.5N	25	1700	..	..	..	..			-	4	188	68	27	03
TRD	01.1S	25	1700	..	..	..	..			-	2	219	104	27	03
API	16.8S	25	14--	..	..	..	..		26(2,3)	5	7	172	35	27	06
HER	33.7S	25	2300	..	..	..	..		26(1)	5	19	109	61	26	15
GUA	04.0N	26	0041	..	..	..	..		26(1)	5	--	80	30	26	15
KGL	56.5S	29	0002	SC	-12	10	- 3		30(1)	3	--	--	--	30	09
COL	64.6N	30	2353	SC*	+18	+41	+20		31(4)	6	79	850	370	31	22
FRD	49.6N	30	2354	SC*	4	41	- 6		30(8) 31(1,2,3,4,5,8)	4	15	95	25	01	03
HON	21.1N	30	2354	SC*	1	28	11		30(8)	4	3	119	16	31	15
JAI	17.3N	30	2354	SC	- .8	18	- 4			-	9	84	53	31	23
SHL	14.6N	30	2354	SC	- .4	16	3			-	8	108	65	31	23
UJJ	13.5N	30	2354	SC	- .4	19	- 5			-	7	108	51	31	23
ABG	09.5N	30	2354	SC	- .5	15	- 5		31(2,3)	5	5	118	44	31	23
HYB	07.6N	30	2355	SC	- .3	21	- 2		31(2,5)	4	5	136	34	31	23
GUA	04.0N	30	2354	SC*	+ 1	+49	-15		30(8)	5	10	150	40	31	22
ANN	01.5N	30	2354	SC	- .7	13	10			-	3	194	76	31	23
HUA	00.6S	30	2355	SC	1	37	6		31(6)	5	8	261	44	31	22
TRD	01.1S	30	2354	SC	--	--	--			-	--	--	--	31	23
KGL	56.5S	30	2354	SC*	32	22	6		30(8) 31(2,4)	3	--	--	--	31	12
HON	21.1N	31	1749	SC	--	8	1		31(1,2,3)	4	2	36	11	01	03

Reports were received from the following observatories:

ALIBAG ANNAMALAINAGAR APIA COLLEGE FREDERICKSBURG GNANGARA GUAM HERMANUS HONOLULU HUANCAYO HYDERABAD
JAIPUR KERGUELEN NEWPORT PORT MORESBY SAN JUAN SHILLONG SITKA TRIVANDRUM UJJAIN WITTEVEEN

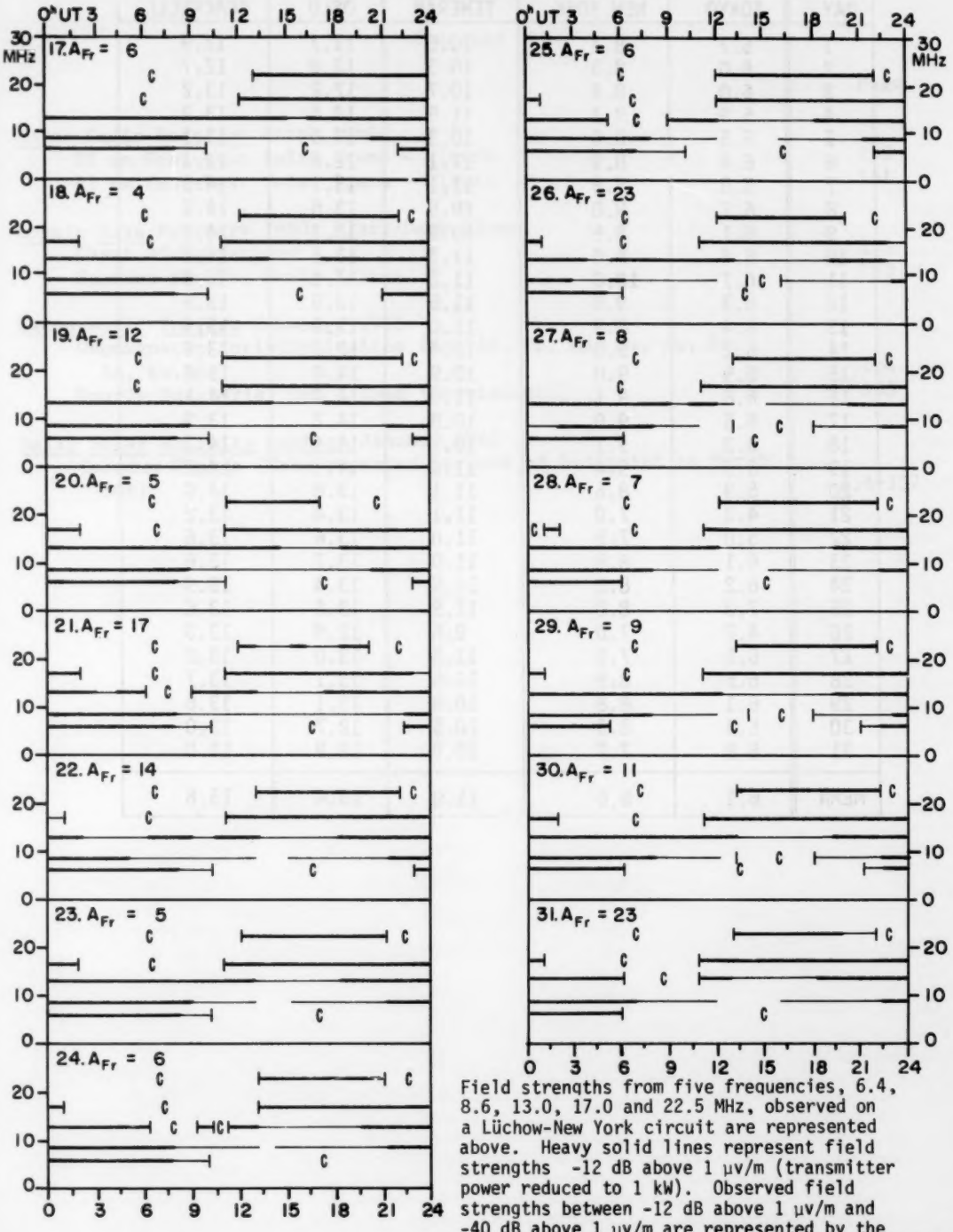
TRANSMISSION FREQUENCY RANGES -- NORTH ATLANTIC PATH

MARCH 1980



TRANSMISSION FREQUENCY RANGES -- NORTH ATLANTIC PATH

MARCH 1980



Field strengths from five frequencies, 6.4, 8.6, 13.0, 17.0 and 22.5 MHz, observed on a Lüchow-New York circuit are represented above. Heavy solid lines represent field strengths -12 dB above 1 μv/m (transmitter power reduced to 1 kW). Observed field strengths between -12 dB above 1 μv/m and -40 dB above 1 μv/m are represented by the fine line. **Adapted from Observations by Deutsche Bundespost**

RADIO PROPAGATION QUALITY INDICES

MARCH 1980

DAY	TOKYO	NEW YORK	TEHERAN	OSLO	BRACKNELL
1	5.7	8.1	10.5	11.7	12.9
2	6.0	8.3	10.3	12.0	12.7
3	6.0	8.4	10.7	12.2	13.2
4	5.9	9.1	11.5	12.4	13.2
5	5.5	8.4	10.3	12.6	13.1
6	6.4	8.9	11.1	12.6	13.1
7	5.8	8.8	11.1	13.7	14.2
8	6.2	9.0	10.5	13.6	14.2
9	6.1	8.5	10.5	13.7	14.3
10	6.4	8.6	11.3	13.6	14.3
11	6.7	10.0	11.2	14.1	13.9
12	6.3	9.0	11.5	13.9	13.9
13	6.4	8.9	11.0	13.9	13.9
14	6.1	9.0	10.4	13.8	13.9
15	6.9	9.0	10.9	14.4	13.8
16	6.8	9.1	11.6	14.0	14.1
17	6.5	9.0	10.8	14.2	13.9
18	6.3	9.1	10.7	14.4	14.3
19	6.9	9.4	11.6	14.1	14.2
20	5.9	8.6	11.1	13.8	14.0
21	4.3	7.0	11.1	13.4	13.2
22	5.0	7.5	11.0	13.6	13.6
23	6.1	8.8	11.0	13.7	13.6
24	6.2	8.8	11.9	13.4	13.9
25	7.3	8.0	11.8	13.5	13.6
26	4.7	7.0	9.6	12.9	13.3
27	6.5	7.6	11.5	13.0	13.2
28	6.6	8.9	11.5	13.1	13.7
29	6.1	8.8	10.8	13.1	13.6
30	5.4	8.3	10.5	12.7	13.0
31	5.8	7.7	10.9	12.9	13.0
MEAN	6.1	8.6	11.0	13.4	13.6

SGD 429 Part I (Prompt)

LATE DATA

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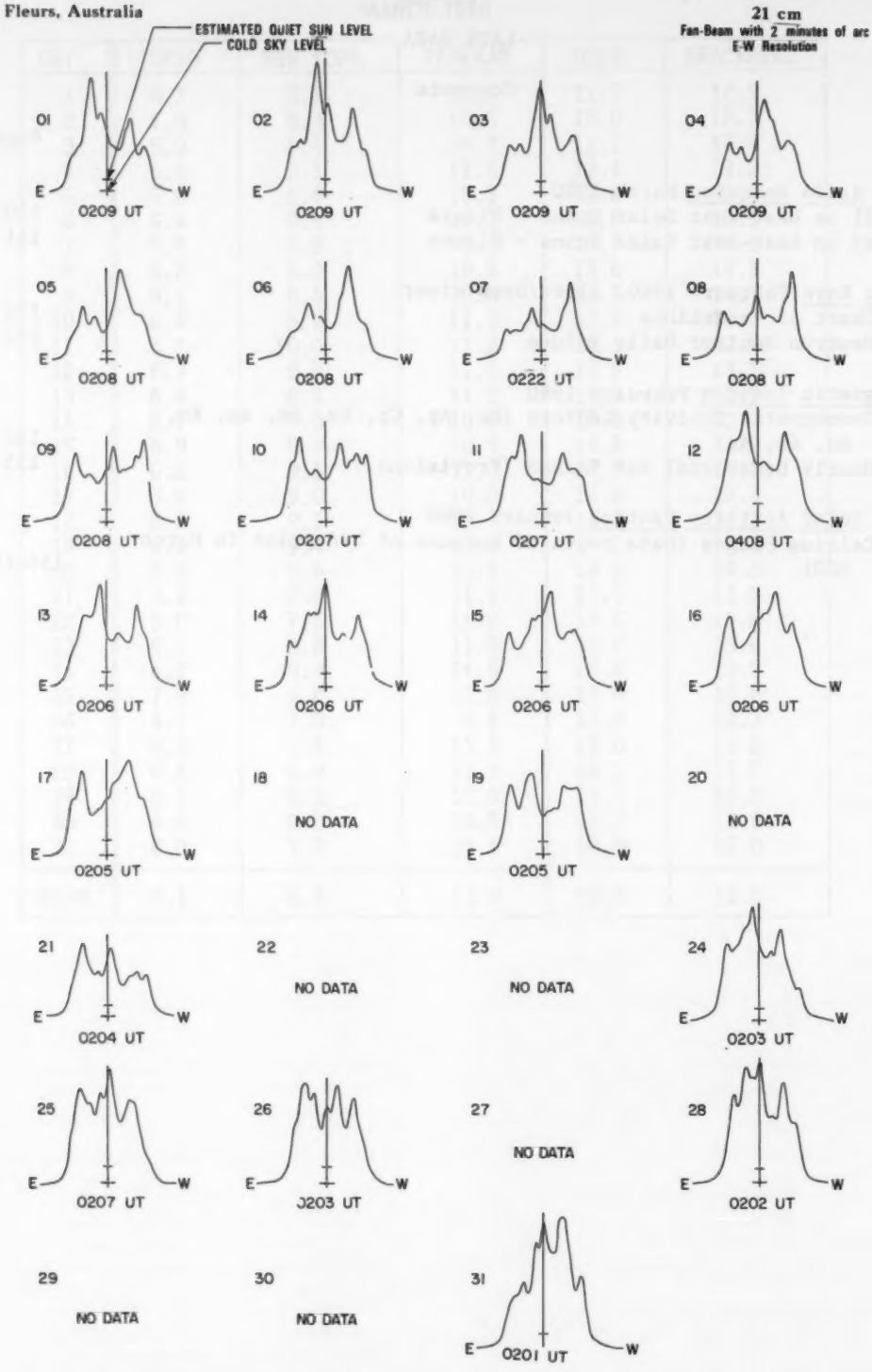
150
Late
Mar 80

EAST-WEST SOLAR SCANS

MARCH 1980

Fleurs, Australia

21 cm
Fan-Beam with 2 minutes of arc
E-W Resolution

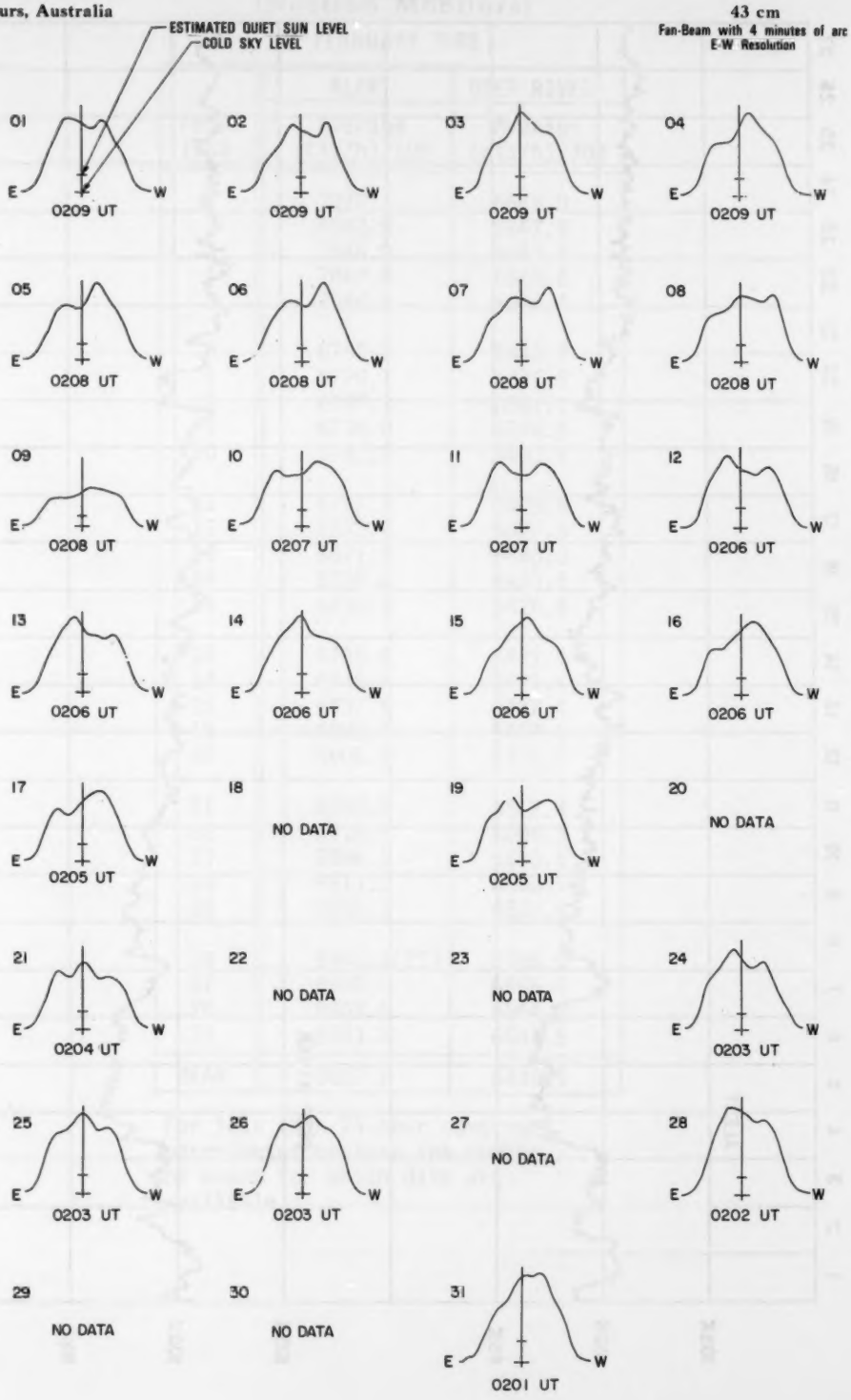


EAST-WEST SOLAR SCANS

MARCH 1980

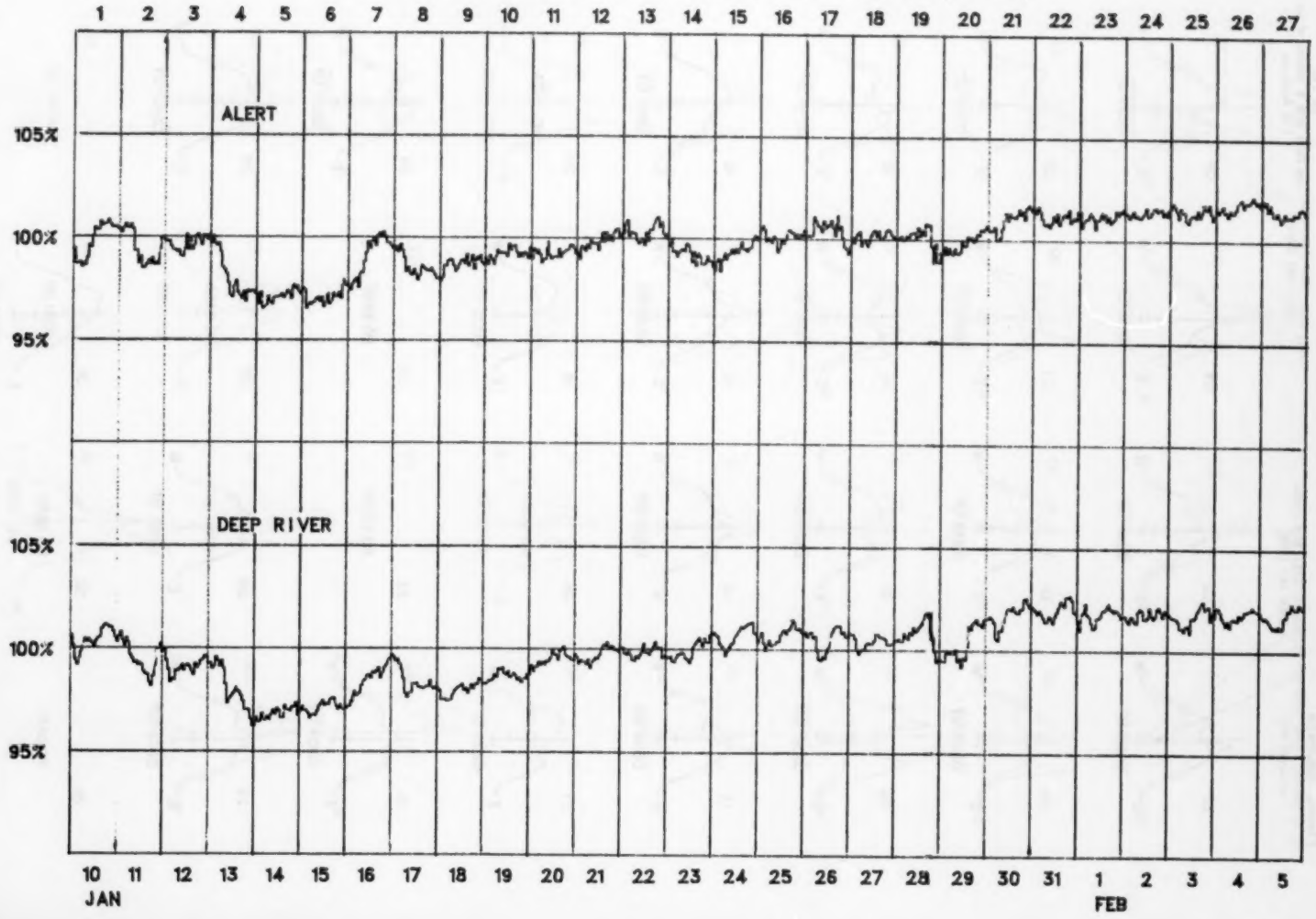
Fleurs, Australia

43 cm
Fan-Beam with 4 minutes of arc
E-W Resolution



COSMIC RAY INDICES
(Neutron Monitor)

Bartels Rotation 2002 (January 1980–February 1980)



COSMIC RAY INDICES
(Neutron Monitors)
FEBRUARY 1980

Feb 1980	ALERT Average (cts/h)/100	DEEP RIVER Average (cts/h)/300
1	7028.1	6649.0
2	7042.5	6647.9
3	7046.0	6643.2
4	7067.8	6649.8
5	7046.5	6645.4
6	6795.3	6442.9
7	6720.1	6336.8
8	6727.3	6381.1
9	6736.0	6378.8
10	6782.2	6403.4
11	6797.7	6405.8
12	6842.1	6427.3
13	6821.6	6440.0
14	6788.6	6433.6
15	6818.1	6426.6
16	6785.8	6422.5
17	6846.7	6451.4
18	6837.5	6442.4
19	6898.7	6468.0
20	6904.5	6474.9
21	6920.8	6512.4
22	6918.1	6509.3
23	6896.1	6500.5
24	6913.2	6508.5
25	6954.3	6560.0
26	6940.3(21)	6568.5
27	6956.0	6586.5
28	6953.6	6564.6
29	6943.3	6587.5
MEAN	6887.2	6498.9

For less than 24-hour coverage, parentheses enclose the number of hours for which data are available.

GEOMAGNETIC ACTIVITY INDICES

FEBRUARY 1980

Day		Three-Hourly Indices Kp									Ap	Cp	Three-Hourly Indices Km								Am	aa			
		1	2	3	4	5	6	7	8	Sum			1	2	3	4	5	6	7	8		N	S	M	
1		2	1+	2-	2+	2-	2-	4-	3+	18-	10	0.6	1+	1+	2	2	2-	2-	4-	3	18	19	19	12	26
2		2+	3+	3	2+	2+	1+	1-	1-	16	9	0.5	2	2+	3-	2	2	1	1-	0+	13	15	12	20	6 K
3	Q2	1-	1	1	1-	0+	1-	0+	1	6-	3	0.1	0+	1-	1	1-	0+	0+	0+	1-	4	6	4	6	4 CC
4	Q9	1-	1	2+	2	1-	0+	0+	0+	8-	4	0.1	1	1-	3-	2-	1	0	0+	0+	7	6	9	12	3 CC
5	Q4	0	0	1-	1+	1	1	1	1-	6-	3	0.1	0+	0+	1-	1+	1	1	1	1-	5	3	7	6	5 CK
6	D3	0	4-	4+	5-	5	5+	5+	2+	31-	33	1.3	1-	4-	4+	4+	5	5	5+	2+	62	40	66	39	67
7		2	2	3+	2-	3+	2	3+	3+	21	12	0.7	2	2+	3	2-	3+	2	3+	3+	25	20	30	21	29
8	D5*	3+	4-	3+	3	4-	3+	2-	3	25	17	0.9	3	3	2	4-	3+	3	1+	3-	28	26	25	25	26
9		2-	3	3	2+	3-	3-	3	2	20+	11	0.7	2-	2+	3-	2+	3-	2+	3	2-	19	19	22	19	23
10	Q5	1	2-	1+	1-	0+	1-	1-	1-	7	4	0.1	1	2-	1+	0+	0	1-	1-	1-	6	3	5	6	2 CK
11	Q8	0+	2+	1+	1	1	1	1	0+	8+	4	0.1	1-	2-	1+	1	1	1-	1-	1-	7	5	10	10	6 CC
12	Q3	1-	0	0+	1	1+	0+	0+	1	5	3	0.0	1-	0	0	1	2-	0	0+	1-	4	4	4	3	4 CC
13	Q1	0+	0	0	1-	1-	1-	1	1	4+	2	0.0	1-	0+	0+	1	1+	1+	1+	2-	7	3	6	4	5 CK
14	D4*	1+	3+	3	5-	3+	4	3-	2-	24	18	1.0	1+	4-	3	5-	4-	4-	3	2-	35	26	43	41	29
15	D2	2+	3-	2	2	3-	3	6-	7	27+	33	1.3	2	2+	2	2+	3-	3	5+	6+	52	47	44	16	75
16	D1	6	6-	6-	4+	4+	3	3	2+	34+	40	1.4	5	4+	5-	5-	4-	3	3	2	55	50	43	67	26
17	Q0	2	2-	2-	1-	2	1+	1+	1+	12	6	0.2	2-	2-	2-	1	2	1+	2-	2-	11	9	17	12	15 K
18		3	2-	3-	2	2	2	3-	3	19	10	0.6	2+	1	2	2+	2+	2-	3-	3-	16	20	21	16	24
19		3+	4+	3-	1-	1	0+	0+	1	14-	10	0.5	3	4-	2	1-	1	0+	0+	1	13	14	10	18	5 K
20		2	1	2-	2	1+	2	1	1+	12+	6	0.3	2-	1	1	2-	1+	2-	1	1	9	12	4	9	8 CC
21	Q7	2-	1-	1	1	1	1	1	2-	9	4	0.2	1	1	1	1+	1	1-	1	2-	8	7	6	7	6 CC
22	Q6	1	1	0+	1+	1-	2-	1-	2-	8+	4	0.1	1+	2-	1	1+	1	2-	1-	2	9	5	10	7	9 CC
23		1	0+	1+	2	3-	3+	3+	2+	16+	9	0.5	1+	1	1+	3-	3-	3	3	3-	20	22	18	11	30
24		2+	2+	1+	2	2+	2+	0+	0+	13+	6	0.3	2+	2-	1-	2-	3-	2+	0	0+	11	13	13	13	13 K
25		1	0+	1+	2+	3-	3	4	4+	19	13	0.8	2-	1-	1	2-	2+	3-	4-	4	24	27	23	9	41
26		4-	3	1+	3	3+	3	3-	2	22	14	0.8	3+	3-	2-	3-	3+	3	2+	2	24	21	30	28	23
27		1+	3	3+	3+	3+	3-	3	3	23	14	0.8	2-	3	3-	3	3	3-	2+	3-	24	25	22	22	26
28		3-	3-	3-	3-	2-	1	2-	3	18	10	0.6	2+	2	2	3	2	1+	2-	3	18	14	20	19	15
29		2+	2	1	2	2+	2	1+	1+	14+	7	0.3	2	2-	1	1+	2	2	1+	2-	12	12	9	9	13 CC
Mean											11	0.51									18.8	17.0	19.0	18.1	

Day	Three-Hourly Indices Kn								An	Three-Hourly Indices Ks								As
	1	2	3	4	5	6	7	8		1	2	3	4	5	6	7	8	
1	2-	1	1+	2-	2-	2-	4-	3-	17	1+	2-	3-	2+	2-	2	4-	3+	21
2	2	3-	3	2	2+	1+	1-	0	14	2+	2+	3-	2	2	1-	1	1-	13
3	0+	1-	1	1-	0+	1-	0	1	4	0	1-	1	1-	0	0+	0+	1-	3
4	1	1-	2+	2-	1	0	0+	0+	7	1	1	3-	2	1-	0+	0+	1-	8
5	0	0	0+	2-	1-	1+	1	0+	5	1-	1-	1	1+	1	1-	1	1-	6
6	0+	3+	4+	4	5	5-	5+	2+	57	1-	4	5-	4+	5	5	6-	3-	67
7	2-	2	3-	2-	3	2+	3+	3	23	2+	3-	3	1+	4-	2-	3+	3+	27
8	3	3	2+	3+	3+	3	2	3-	28	3+	3	2	4-	3+	3	1	3	28
9	1+	2+	3-	3-	2+	2+	3	2	20	2	3-	3-	2	3-	2+	3-	2-	19
10	1	1+	1+	0+	0	1-	1-	1-	5	1+	2+	1+	0+	0+	1	1-	1-	7
11	0+	1+	1	1	1+	1-	1-	0+	6	1	2	1+	1+	1-	1-	1-	1-	7
12	1-	0	0	1	2-	0	0	1	4	1-	0+	0	1	2-	0+	0+	1-	4
13	0+	0	0	1-	1	1	1	1	5	1-	1-	1-	1+	2-	1+	1+	2	9
14	1+	3	3-	5-	4-	4-	3-	1+	32	2-	4	3+	5-	4-	4-	3	2-	38
15	2	2+	2+	2+	3-	3	5	6-	44	2	2+	2-	2+	3-	3	6-	7-	59
16	5	5-	5-	4+	4+	3	3+	2	57	5+	4	5-	5-	3+	3	3	2	53
17	1+	1+	2-	1	2-	1	2-	2-	10	2-	2-	2	1	2+	2-	1+	2-	12
18	3-	1+	2+	3-	2+	2	3	3-	20	2+	1-	1+	2-	2	1+	2+	3-	13
19	3	3+	2+	1-	1	0+	0+	1	13	3	4	2-	0+	1	0+	0+	1	14
20	2-	1	1+	2	2-	2	1+	1+	11	1+	1	1	1+	1	2-	1-	1	7
21	1+	1-	1	1+	1	1	1	2-	7	1-	1	1+	1+	1+	1-	1	2	8
22	1	1	1	1	1	2-	1	2-	8	1+	2	1	2-	1	1+	0+	2+	10
23	1+	1	2-	3-	3-	3+	3	2+	19	1+	1	1+	3-	3-	3	3	3+	20
24	2	1+	1-	2-	3-	2+	0	0	11	2+	2	1	1+	3-	2	0	0+	11
25	1+	0	1	2	2+	3	4-	4-	22	2	1	1+	2-	2+	3-	4	4+	25
26	3	2+	2-	2+	3+	3-	3-	2	22	3+	3-	2-	3	3+	3	2+	2+	27
27	1+	3-	3-	3	3+	3-	2+	3-	23	2-	3+	3	3	3	2+	3-	3	25
28	2+	2-	2+	3	2+	2-	2-	3-	18	3-	2+	2	3-	2-	1+	2-	3	18
29	2	2-	1	1+	2	2+	2-	2-	13	2	1+	1+	1	2	2-	1	2	11
Mean									18.1									19.7

Quiet days (Q) and disturbed days (D), geomagnetic planetary three-hour-range indices (Kp) (integers alone are equivalent to those normally given with a small zero), magnetic character figures (Cp), and average amplitude (Ap) (unit 2 nT) prepared by Geophysikalisches Institut at the University of Göttingen, F.R. of Germany for the International Service of Geomagnetic Indices. Ten most quiet days [Q1-Q0(10)] and five most disturbed days [D1-D5] are ordered from most quiet or disturbed, respectively. A or K means "not really quiet" (A = "Ap>6", K = "Ap≤6 but one Kp≥30 or two Kp values≥3-"). An asterisk means "not really disturbed" (Ap<20).

Geomagnetic three-hourly indices Km, Kn, Ks, daily mean values Am, An, As (unit 1nT), and indices aa are prepared by M. Menvielle of the Institut de Physique du Globe, Paris, France. For aa indices daily north (N) and south (S) values, and half-daily antipodal mean (M) values are given. Quiet 24-hour and 48-hour intervals centered on 1200 UT are indicated for really quiet as C and for quiet but with some slightly disturbed three-hour intervals as K. The first hundred years series of aa is in IAGA Bulletin No.33, and complementary data are in IAGA Bulletin No.39.

HOURLY EQUATORIAL Dst VALUES (PROVISIONAL
FEBRUARY 1980

HOURLY EQUATORIAL Dst VALUES (PROVISIONAL

FEBRUARY 1980

NASA/GODDARD SPACE FLIGHT CENTER

(Time-UT) (Units-Gammas)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	-13	-17	-16	-16	-13	-11	-14	-13	-5	-2	2	-2	1	4	7	8	7	3	4	-5	-8	-7	-2	4
2	-4	1	3	-1	-5	-10	-10	-10	-8	-5	-3	0	5	4	1	0	1	-4	-7	-6	-5	-2	-1	-1
3	-6	-7	-5	1	6	8	6	4	5	1	1	0	1	4	8	7	7	6	5	5	4	2	-1	-1
4	-1	0	3	6	8	9	10	5	4	4	4	2	5	8	11	12	10	4	1	1	1	1	3	2
5	3	5	7	7	9	10	10	12	13	13	4	9	6	6	4	10	1	-1	-1	1	-1	-2	-1	-1
6	2	-1	1	16	27	28	26	11	-14	-28	-17	-22	-24	-21	-25	-49	-56	-60	-57	-75	-69	-57	-55	-55
7	-52	-47	-49	-48	-50	-50	-54	-53	-59	-54	-51	-49	-36	-33	-28	-25	-30	-33	-32	-34	-34	-31	-23	-21
8	-23	-23	-33	-29	-29	-29	-32	-35	-37	-38	-38	-36	-28	-32	-33	-33	-28	-28	-26	-27	-27	-26	-26	-26
9	-22	-19	-18	-20	-12	-11	-18	-16	-12	-13	-11	-10	-8	-8	-11	-18	-18	-22	-26	-24	-20	-18	-16	-14
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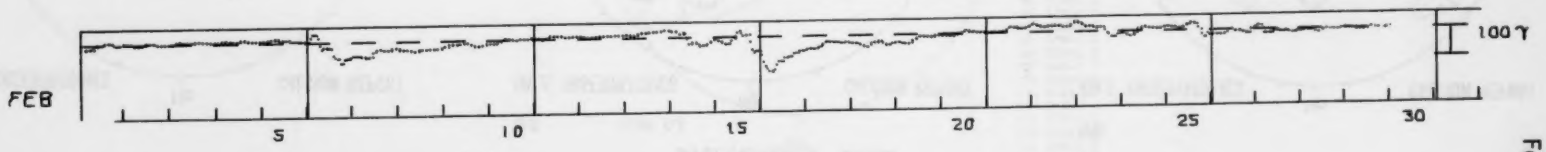

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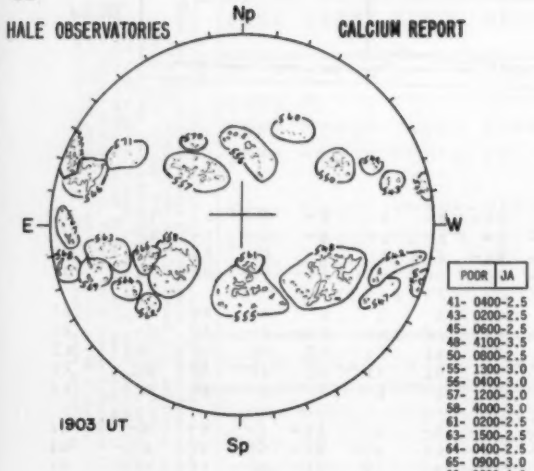

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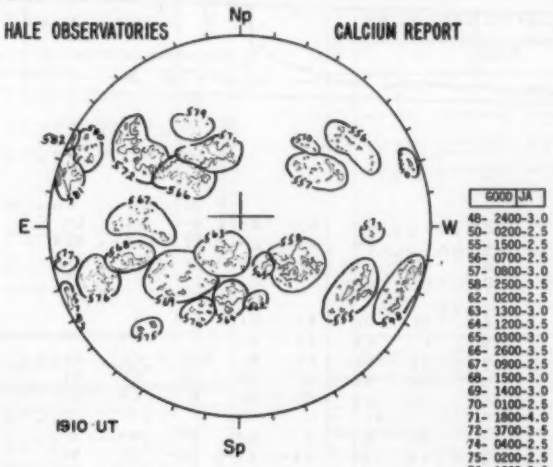

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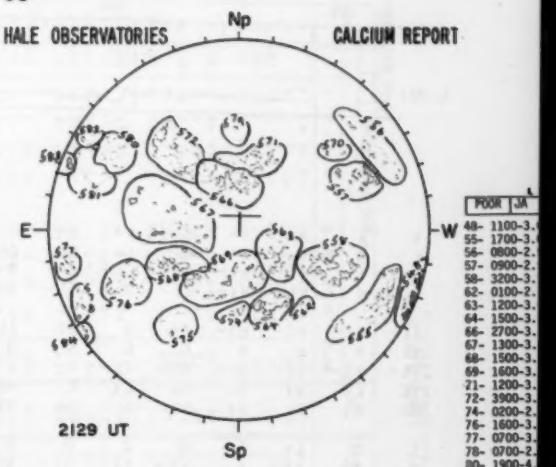

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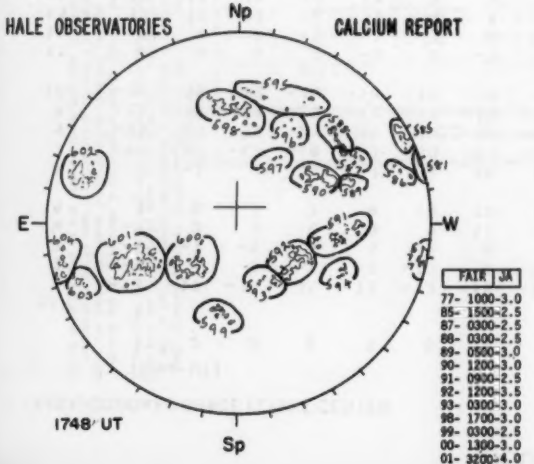

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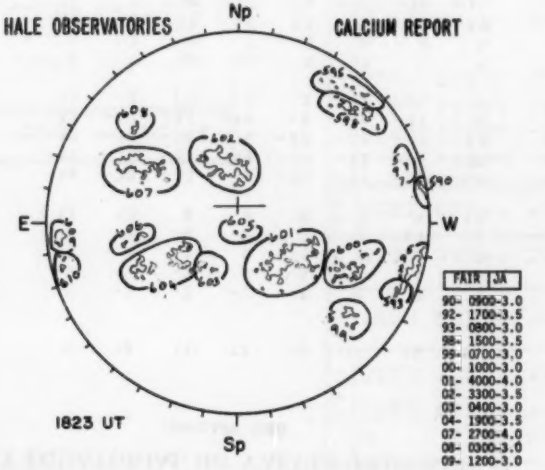

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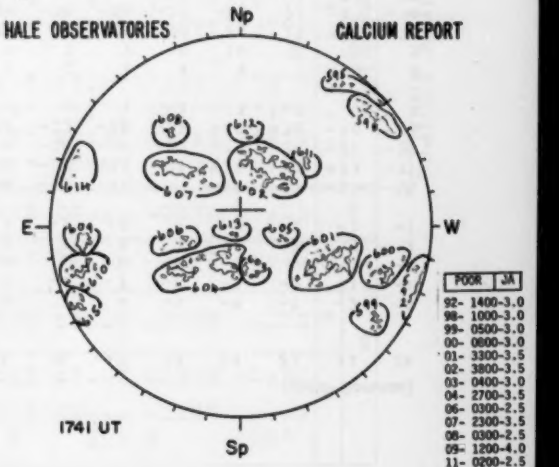

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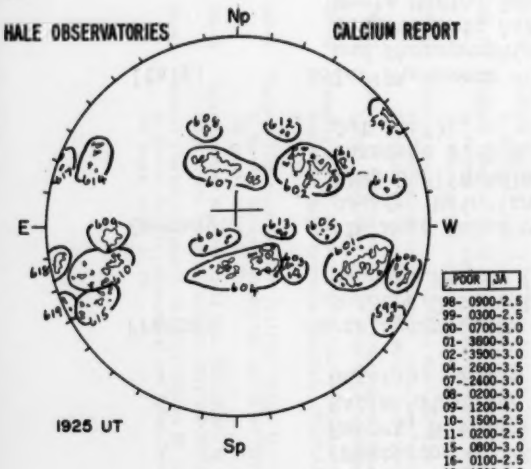

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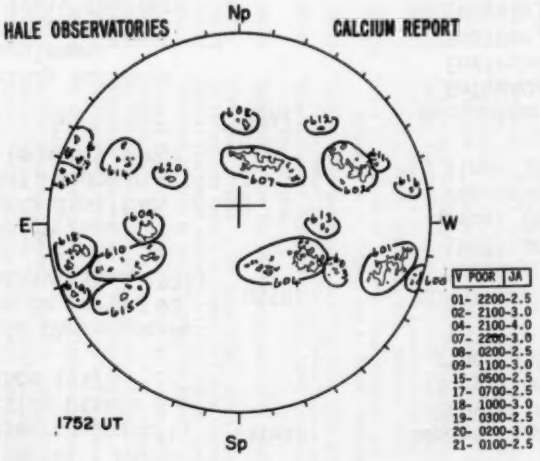

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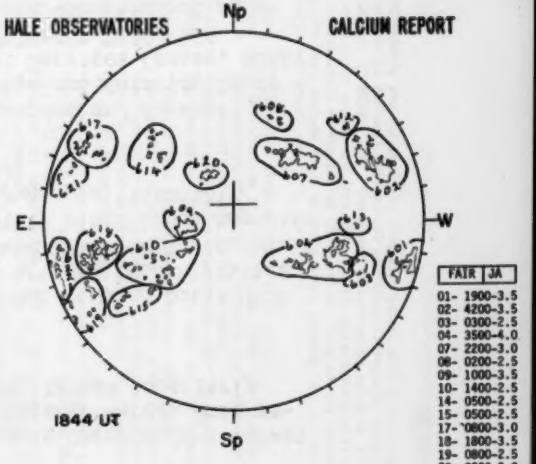

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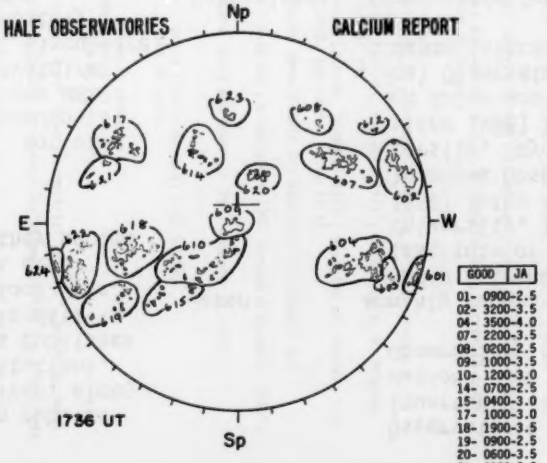

SOME OTHER SOURCES OF DATA

Data Available: Some data available in publication form are cited here. A list is given, along with addresses of the responsible institutions. The WDC-A for Solar-Terrestrial Physics publishes the Toyokawa, Ottawa and Penticton radio data in its monthly publication, *Solar-Geophysical Data*. The WDC-A for Solar-Terrestrial Physics also receives most of the periodicals when they become available.

Belgium: *Bulletin d'Observations: Activite Solaire - Observations Radioelectriques Solaires - 600 MHz (Humain, Belgium)* Observatoire Royal de Belgique, Ave. Circulaire 3, Brussels, Belgium (monthly since 1962)

Canada: *Solar Noise Observations at 2800 Mc/s (Ottawa - ARO) and 2700 Mc/s (Penticton - DRAO)* Series C Monthly Report, National Research Council, Radio Astronomy Section Ottawa 7, Ontario, Canada (since 1947)

France: *Carte Synoptiques de la Chromosphere Solaire* Observatoire de Paris, 92 Meudon, France (monthly since 1931)

Germany: *Daily Mean Value of Solar Flux Density* Heinrich-Hertz Institut, 1199 Berlin-Adlershof, Rudower Chaussee 5, G.D.D. (monthly since Jul 1957)

Italy: *Solar Phenomena - Monthly Bulletin and Photographic Supplement* Osservatorio Astronomica di Roma, Monte Mario, Rome, Italy (monthly since 1958) *Osservazion Solari, Solar Flux and Distinctive Events* Osservatorio Astronomico Di Trieste (quarterly since 1965) *Solar Observations made at Catania Astrophysical Observatory* (annually since 1967)

Japan: *Monthly Report of Solar Radio Emission* Radio Astronomy Section, Research Institute of Atmospherics, Nagoya University, Toyokawa, Japan (since 1956) *Solar Activity Chart* WDC-C2, Toyokawa Observatory, Nagoya University, Toyokawa, Japan (annually since 1968) *IAU Quarterly Bulletin on Solar Activity* Tokyo Astronomical Observatory, Mitaka, Tokyo, Japan (since 1978)

Netherlands: *Geomagnetic Data* IAGA Bulletin No. 12 (1932-69), No. 32 (since 1970) IUGG Publications Office, 39 ter, Rue Gay-Lussac, Paris V, France (annually)

Taiwan: *Report on Sunspot Observations* Taiwan Provincial Weather Bureau Observatory, Taipei, Taiwan (quarterly since 1957)

USSR: СОЛНЕЧНЫЕ ДАННЫЕ *(Solar Data)* USSR Academy of Science (monthly since 1958) КОСМИЧЕСКИЕ ДАННЫЕ *(Cosmic Data)* (monthly since 1962) *Magnetic Fields of Sunspots* (bimonthly since 1964)

USA: *Preliminary Report and Forecast of Solar-Geophysical Activity* Space Environment Services Center, NOAA, Boulder, Colorado 80303 USA (weekly) *Solar-Geophysical Data* NOAA, Boulder, Colorado 80303 USA (monthly since November 1956)

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UAG-23A "U.R.S.I. Handbook of Ionogram Interpretation and Reduction, Second Edition, November 1972", Revision of Chapters 1-4, edited by W. R. Piggott and K. Rawer, NGSDC/EDS/NOAA, July 1978, 135 pages, price $2.14.

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UAG-41 "H-Alpha Synoptic Charts of Solar Activity During the First Year of Solar Cycle 20, October, 1964 - August, 1965", by Patrick S. McIntosh, NOAA Environmental Research Laboratories, and Jerome T. Nolte, American Science and Engineering, Cambridge, Massachusetts, March 1975, 25 pages, price 48 cents.

UAG-42 "Observations of Jupiter's Sporadic Radio Emission in the Range 7.6-80 MHz 10 December 1971 through 21 March 1975", by James W. Warwick, George A. Dulk, and Anthony C. Riddle, Department of Astro-Geophysics, University of Colorado, Boulder, Colorado 80302, April 1975, 49 pages, price $1.15.

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UAG-45 "Auroral Electrojet Magnetic Activity Indices AE (11) for 1972", by Joe Haskell Allen, Carl C. Abston and Leslie D. Morris, National Geophysical and Solar-Terrestrial Data Center, Environmental Data Service, May 1975, 144 pages, price $2.10.

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UAG-47 "Auroral Electrojet Magnetic Activity Indices AE (11) for 1973", by Joe Haskell Allen, Carl C. Abston and Leslie D. Morris, National Geophysical and Solar-Terrestrial Data Center, Environmental Data Service, June 1975, 144 pages, price $2.10.

UAG-48A "Synoptic Observations of the Solar Corona during Carrington Rotations 1580-1596 (11 October 1971 - 15 January 1973)", [Reissue with quality images] by R. A. Howard, M. J. Koomen, D. J. Michels, R. Tousey, C. R. Detwiler, D. E. Roberts, R. T. Seal and J. D. Whitney, E. O. Hulbert Center for Space Research, NRL, Washington, D. C. 20375 and R. T. and S. F. Hansen, C. J. Garcia and E. Yasukawa, High Altitude Observatory, NCAR, Boulder, Colorado 80303, February 1976, 200 pages, price $4.27.

UAG-49 "Catalog of Standard Geomagnetic Variation Data", prepared by Environmental Data Service, NOAA, Boulder, Colorado, August 1975, 125 pages, price $1.85.

UAG-50 "High-Latitude Supplement to the URSI Handbook on Ionogram Interpretation and Reduction", by W. R. Piggott, British Antarctic Survey, c/o SRC, Appleton Laboratory, Ditton Park, Slough, England, October 1975, 292 pages, price $4.00.

UAG-51 "Synoptic Maps of Solar Coronal Hole Boundaries Derived from He II 304Å Spectroheliograms from the Manned Skylab Missions", by J. D. Bohlin and D. M. Rubenstein, E. O. Hulbert Center for Space Research, Naval Research Laboratory, Washington, D. C. 20375 U.S.A., November 1975, 30 pages, price 54 cents.

UAG-52 "Experimental Comprehensive Solar Flare Indices for Certain Flares, 1970-1974", compiled by Helen W. Dodson and E. Ruth Hedeman, McMath-Hulbert Observatory, The University of Michigan, 895 Lake Angelus Road North, Pontiac, Michigan 48055 U.S.A., November 1975, 27 pages, price 60 cents.

UAG-53 "Description and Catalog of Ionospheric F-Region Data, Jicamarca Radar Observatory (November 1966 - April 1969)", by W. L. Clark and T. E. Van Zandt, Aeronomy Laboratory, NOAA, Boulder, Colorado 80302 and J. P. McClure, University of Texas at Dallas, Dallas, Texas 75230, April 1976, 10 pages, price 33 cents.

UAG-54 "Catalog of Ionosphere Vertical Soundings Data", prepared by Environmental Data Service, NOAA, Boulder, Colorado 80302, April 1976, 130 pages, price $2.10.

UAG-55 "Equivalent Ionospheric Current Representations by a New Method, Illustrated for 8-9 November 1969 Magnetic Disturbances", by Y. Kamide, Cooperative Institute for Research in Environmental Sciences, University of Colorado, Boulder, Colorado 80302 and Geophysical Institute, University of Alaska, Fairbanks, Alaska 99701, H. W. Kroehl, Data Studies Division, NOAA/EDS/NGSDC, Boulder, Colorado 80302, M. Kanamitsu, Advanced Study Program, National Center for Atmospheric Research, Boulder, Colorado 80303, J. H. Allen, Data Studies Division, NOAA/EDS/NGSDC, Boulder, Colorado 80302, and S.-I. Akasofu, Geophysical Institute, University of Alaska, Fairbanks, Alaska 99701, April 1976, 91 pages, price $1.60.

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UAG-57 "Manual on Ionospheric Absorption Measurements", edited by K. Rawer, Institut für Physikalische Weltraumforschung, Freiburg, G.F.R., June 1976, 202 pages, price $4.27.

UAG-58 "ATS6 Radio Beacon Electron Content Measurements at Boulder, July 1974 - May 1975", by R. B. Fritz, Space Environment Laboratory (currently with Wave Propagation Laboratory), NOAA, Boulder, Colorado 80302 USA, September 1976, 61 pages, price $1.04.

UAG-59 "Auroral Electrojet Magnetic Activity Indices AE(11) for 1974", by Joe Haskell Allen, Carl C. Abston and Leslie D. Morris, National Geophysical and Solar-Terrestrial Data Center, Environmental Data Service, December 1976, 144 pages, price $2.16.

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UAG-72 "Energy Release in Solar Flares, Proceedings of the Workshop on Energy Release in Flares, 26 February-1 March 1979, Cambridge, Massachusetts, U.S.A.", edited by David M. Rust, American Science and Engineering, Inc., Cambridge, MA and A. Gordon Emslie, Harvard-Smithsonian Center for Astrophysics, Cambridge, MA, July 1979, 68 pages, price $1.50.

UAG-73 "Auroral Electrojet Magnetic Activity Indices AE(11-12) for January-June 1975", by J. H. Allen, C. C. Abston, J. E. Salazar and J. A. McKinnon, NGSDC/EDIS/NOAA, August 1979, 114 pages, price $1.75.

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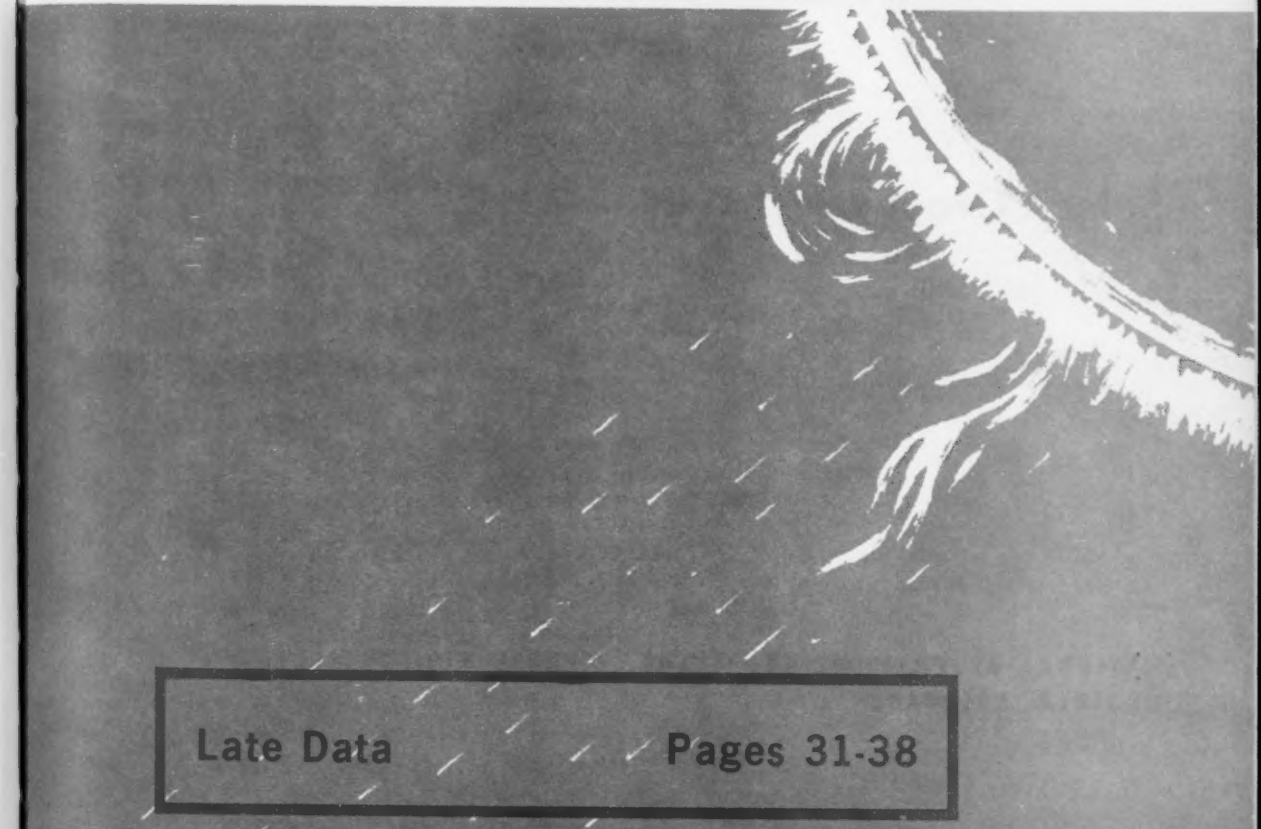

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Solar - Geophysical Data

NO. 429 MAY 1980

Part II (Comprehensive Reports)

DATA FOR
NOVEMBER 1979

NATIONAL GEOPHYSICAL AND SOLAR - TERRESTRIAL DATA CENTER
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SOLAR-GEOPHYSICAL DATA

No. 429

Issued in two parts

Helen E. Coffey, Editor

J. Virginia Lincoln, Chief
Solar-Terrestrial Physics Division

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Notes:

"418A 48" listed under 1979 Apr means that the sunspot drawings for April 1979 were contained in *Solar-Geophysical Data* Number 418 - Part I, beginning on page 48.

A = Part I, B = Part II.

----- = no data available.
blank = data not yet received.

SGD 429 Part II (Comprehensive)

NOVEMBER 1979 DATA

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NOTE ON SOLAR FLARE DATA DELAY:

Solar Flare data for publication are now over a year delayed from date of observation, rather than the usual six months. Several problems have caused this delay. A basic step of flare processing is using the Carte Synoptique de la Chromosphere to identify active centers. Because these Carte Synoptique data are also currently delayed, the Meudon Observatory staff, who performs this analysis, are hindered in their efforts. Meudon is also changing to another computer, which can mean computer program conversion problems that can delay the work. NGSDC is also working on some conversion problems.

A delay in the final listing of the solar flare data also delays the Daily Flare Index, the Regional Flare Index and the Abbreviated Calendar Record. We deeply regret this situation and hope it will improve in the near future. We ask for your patience in the interim.

For researchers who need the solar flare data more promptly, NGSDC has available "Preliminary" final listings of solar flares for April-August 1979. These fairly complete listings do not have the final Meudon corrections, and thus will not be published until we receive these corrections. However, they are available on request with the stipulation that they are recognized as "Preliminary" final listings when used in research projects. A fee may be charged for reproducing these data if a large demand ensues. Please contact the editor, Helen Coffey, for copies of these listings (phone: (303) 499-1000 X6223; FTS: 323-6223; Telex: SOLTERWARN BLDR 45897.)

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

NOVEMBER 1979

DAY OF MONTH	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} MEAN	INT	POLARIZATION OR REMARKS
01	202	IZMI	43 NS	0600.0		360.0D	55			
	127	TORN	43 NS	0640.0	1052.5	250.0D	500	3.3		V1,INCOMPLETE
	260	ONDR	44 NS	1015.0E		235.0D	37			
	200	HIRA	44 NS	2100.0E	0057	420.0D	25	10		ML
	100	HIRA	44 NS	2100.0E	0230	600.0D	70	25		
	2930	VORO	45 C	0030.0	0037	15.0	36			
	100	HIRA	46 C	0034.0	0035	4.0	3000	700		
	1415	MANI	4 S/F	0034.0	0036.4	5.0	24.9	8.3		
	200	HIRA	46 C	0034.2	0035	3.5	480	130		MR
	1400	SYDN	27 RF	0034.4	0035.8	5.2				
	4995	MANI	3 S	0034.7	0035.4	4.3	41.8	13.9		
	8800	MANI	3 S	0034.7	0035.4	4.3	30.2	10.1		
	2695	MANI	4 S/F	0034.7	0036.2	4.3	30.1	10.0		
	606	MANI	3 S	0035.0	0036.0	4.0	7.3	2.4		
	9100	GORK	20 GRF	0539.0	0546.0	9.5	8	3.5		
	3100	CRIM	21 GRF	0747.0	0840.0	53.0	11	4		
	930	BORD	40 F	0806.0	0808.3	16.0	24	5		
	950	GORK	22 GRF	0806.0	0816.0	15.4	14.3			
	650	GORK	23 GRF	0806.0		16.5				
	8400	BERN	3	0810.0	0815.3	32.0	97.0			
	9100	GORK	21 GRF	0810.8	0818.5	25.0	19.5	10		
	606	MANI	4 S/F	0811.0	0815.1	11.0	121.6	40.5		
	3100	CRIM	3 S	0812.0	0815.5	4.0	110	37		
	2950	GORK	21 GRF	0812.0	0812.8	11.2	7.8	3.9		
	1470	POTS	3 S	0812.0	0815.5	10.0	17			
	2695	MANI	4 S/F	0812.3	0815.6	9.7	88.8	29.6		
	4995	MANI	4 S/F	0812.3	0815.3	9.7	127.0	42.3		
	8800	MANI	3 S	0812.9	0815.6	9.1	68.0	22.7		
	2650	DWIN	3 S	0813.0	0815	8.0	50	30		
	10715	DWIN	3 S	0813.0	0815	7.0	70	40		
	650	GORK	46 C	0813.0	0814.6U	4.3	40 D			
	650	GORK		0813.0	0815.5U		40 D			
	1415	MANI	4 S/F	0813.0	0815.9	9.0	13.2	4.4		
	9500	POTS	3 S	0813.5	0815.0	6.5	72			
	3000	POTS	3 S	0813.5	0815.4	6.5	79			
	2950	GORK	3 S	0813.6	0815.1	5.2	69 D			
	9100	GORK	3 S	0813.8	0815.5	4.8	8.8	44		
	3100	CRIM	29 PBI	0816.0	0816.0	24.0	73			
	7000	SAOP	27 RF	1325.0		50.0	13.0			0
	2800	OTTA	20 GRF	1330.0	1355	140.0	7.6	4.2		
	9400	HUAN	20 GRF	1542.8	1550.8	16.0	6.2	1.9		0
	9400	HUAN	20 GRF	1644.6	1701.5	36.4	4.7	3.3		R
	2800	OTTA	20 GRF	1840.0	1950	270.0D	6.8			
02	202	IZMI	43 NS	0600.0		360.0D	45			
	260	ONDR	44 NS	0754.0E		370.0D	50	3		
	536	ONDR	43 NS	0857.0		307.0D	370	8		
	100	HIRA	44 NS	2100.0E	2221	600.0D	70	18		
	200	HIRA	44 NS	2100.0E	2300	600.0D	15	5		ML
	930	BORD	41 F	0747.8	0748	.5	28	3		
	930	BORD	41 F	0754.6	0754.9	.6	11	2		
	930	BORD	45 C	1104.8	1107.8	4.2	1595	10		
	808	ONDR	46 C	1105.0	1108	4.0	263	38		
	29	UPIC	45 C	1105.0	1105.6	1.9				
	33	UPIC	45 C	1105.0	1105.1	2.6				
	228	HARS	45 C	1106.2	1106.2	1.2	480	160		
	33	UPIC	45 C	1118.9	1118.9	2.0				
	930	BORD	45 C	1119.0	1119.3	1.0	319	6		
	3000	POTS	8 S	1119.0	1119.3	.8	8.0			
	1470	POTS	3 S	1119.0	1119.3	1.0	10			
	808	ONDR	8 S	1119.0	1119	.3	120			
	29	UPIC	45 C	1119.1	1119.4	1.4				
	9500	POTS	8 S	1119.2	1119.3	.3	7.8			
	650	GORK	3 S	1119.3	1119.7U	1.0	50 D			
	9100	GORK	1 S	1119.5	1119.6	1.2	19	3		
	7000	SAOP	8 S	1219.0	1219.2	.2	27.0			35R
	930	BORD	45 C	1239.5	1240	1.4	1650	10		
	33	UPIC	46 C	1239.6	1241	1.9				
	29	UPIC	46 C	1239.8	1241.3	2.1				
	1470	POTS	8 S	1240.0	1240.3	.8	9.1			
	3000	POTS	8 S	1240.0	1240.2	.7	7.0			
	808	ONDR	8 S	1240.2	1240.2	.3	250			
	808	ONDR	3 S	1304.3	1304.3	.2	65			
	930	BORD	45 C	1304.5	1304.7	.5	190	6		
	930	BORD	41 F	1308.0	1308.4	1.0	42	3		
	930	BORD	41 F	1351.0	1351.2	1.6	50	2		
	228	HARS	45 C	1403.2	1403.9	1.0	195	80		
	2800	OTTA	20 GRF	1430.0	1510	75.0	2.8	1.4		
	930	BORD	41 F	1450.3	1452.4	2.4	64	2		
	930	BORD	41 F	1507.4	1507.6	2.6	175	2		
	930	BORD	8 S	1514.7	1514.7	.2	13	2		
	9400	HUAN	1 S	1600.3	1601.1	1.7	8.2	4.6		0
	2800	OTTA	21 GRF	1610.0	1650	80.0	2.8	1.6		
	2800	OTTA	20 GRF	1637.0	1640	11.0	4.8	2.3		

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DAY OF MONTH	FREQUENCY	STATION	TYPE	STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1}		INT	POLARIZATION OR REMARKS
				UT	UT	MINUTES	PEAK	MEAN		
02	2800	OTTA	1 S	1757.0	1759	3.0	3.0	1.5		
	2800	OTTA	20 GRF	1920.0	2035	105.0	2.6	1.5		
	2695	PENT	20 GRF	2135.0	2155	45.0	2.6	1.3		
03	260	ONDR	44 NS	0730.0E		405.0D	50	2		
	127	TORN	44 NS	0800.0E		310.0D		.8		VO,DISTURBED
	200	HIRA	44 NS	2104.0E	0600	600.0D	20	15		WL
	1470	POTS	8 S	0758.8	0758.9	.6	17			
	2950	GORK	20 GRF	0801.0E	0801.4	16.6	4.4	2.2		
	202	IZMI	4 S/F	0810.5	0810.6	1.2	125	60		
	228	HARS	45 C	1440.0	1441.6	2.8	470	170		
	2650	DWIN	1 S	1441.0	1442	2.0	45	30		
	2800	OTTA	4 S/F	1441.5	1442.2	2.5	47.8	15.0		
	8400	BERN	1	1442.0	1442.6	1.5	20.0			
	2800	OTTA	20 GRF	1510.0	1517	20.0	4.6	2.3		
	7000	SAOP	45 C	1737.0	1802.1	52.0	42.0			7L INVERTED POL
	2800	OTTA	240AR	1746.0	1756	10.0	5.8			
	2800	OTTA	2 S/F	1746.0	1748.5	9.0	8.6	4.3		
	9400	HUAN	20 GRF	1800.3	1814.4	29.8	9.5	4.3		0
	2800	OTTA	3 S	1801.0	1802	5.0	15.0	7.2		
	2800	OTTA	1 S	1810.0	1811	4.0	5.8	2.9		
	2800	OTTA	21 GRF	1945.0	1958	48.0	3.6	1.8		
	2800	OTTA	1 S	1952.5	1953.5	4.0	2.8	1.4		
	2695	PENT	20 GRF	2045.0	2150	130.0D	7.4			
04	127	TORN	44 NS	0600.0E		540.0D		15		VO
	260	ONDR	44 NS	0820.0E		356.0D	61	5		
	200	HIRA	44 NS	2100.0E	0610	600.0D	35	15		WL
	100	HIRA		0228.0	0231.5		900			
	200	HIRA		0228.0	0231		80			WL
	100	HIRA	46 C	0228.0	0229	5.0	3800	400		
	200	HIRA	46 C	0228.0	0229	5.0	150	30		WL
	500	HIRA	48 C	0502.6	0508.4	30.0	600	150		0
	1415	MANI	4 S/F	0502.7	0506.7	21.8	45.0	15.0		
	606	MANI	47 GB	0503.2	0506.7	27.8	795.7	265.2		
	5730	IRKU	20 GRF	0506.0	0508.9	17.0	14	6		L
	2695	MANI	4 S/F	0506.0	0508.4	18.5	51.2	17.1		
	4995	MANI	3 S	0506.3	0508.6	17.3	27.9	9.3		
	200	HIRA		0510.0	0517		220			MR
	200	HIRA	45 C	0510.0	0512.5	17.0	11000	300		MR
	100	HIRA	46 C	0510.7	0511.6	1.5	5000	500		
	5730	IRKU	2 S	0807.0	0807.5	1.0	62	30		R
	9100	GORK	3 S	0807.1	0807.5	3.5	50	25		
	2950	GORK	20 GRF	0807.2	0807.5	26.4	3.5	1.7		
	8400	BERN	3	0807.3	0807.5	2.0	50.0			
	3100	CRIM	3 S	0838.0	0840.0	4.0	30	10		
	930	BORD	41 F	0919.4	0919.7	.5	55	2		
	2950	GORK	21 GRF	1033.0	1041.5	36.0	5.2	2.6		
	9100	GORK	21 GRF	1037.9	1039.4	13.6	16	5		
	2650	DWIN	1 S	1038.0	1039	4.0	260	150		
	930	BORD	45 C	1038.0	1038.6	4.0	308	7		
	7000	SAOP	3 S	1038.0	1038.8	2.2	73.0			20L
	8400	BERN	3	1038.0	1038.7	4.0	53.0			
	650	GORK	3 S	1038.1	1038.8	1.5	60			
	536	ONDR	2 S/F	1038.2	1038.2	2.0	46	20		
	29	UPIC	46 C	1038.2	1039.3	2.3				
	33	UPIC	46 C	1038.2		4.9				
	950	GORK	3 S	1038.3	1038.6	1.5	70 D			
	2950	GORK	3 S	1038.3	1038.6U	3.3	90			
	3000	POTS	3 S	1038.5	1038.5	4.0	215			
	9100	GORK	3 S	1038.6	1038.8	.8	39	19		
	127	TORN	47 GB	1039.0	1039.7	1.9	1100	550		
	650	GORK	29 PBI	1039.6	1039.4	3.3	2			
	950	GORK	29 PBI	1039.8	1040.0	8.4	3.5			
	2800	OTTA	20 GRF	1427.0	1445	70.0	5.2	3.0		
	2800	OTTA	22 GRF	1550.0	1620	40.0	3.4			
	2800	OTTA	1 S	1703.0	1703.7	2.0	2.6	1.3		
	2695	PENT	21 GRF	1703.0	1711	12.0	3.6	1.8		
	2800	OTTA	21 GRF	1735.0	1745	12.0	3.6	1.8		
	2800	OTTA	1 S	1736.0	1738	5.0	4.4	2.2		
	9400	HUAN	22 GRF	1743.1	1808.6	91.7	92.0	22.9		L
	9400	HUAN		1743.1	1811.5		99.0			
	2800	OTTA	21 GRF	1800.0	1845	120.0	5.2	2.7		
	2800	OTTA	45 C	1801.0	1806.2	24.0	86.0	41.5		
	7000	SAOP	45 C	1801.7	1811.5	22.0	132.0			0 TWO BURSTS
	2695	BOUL	22 GRF	1804.5E	1812	19.0D	52	17		
	2800	OTTA	22 GRF	2040.0	2054	140.0	15.0	3.8		
	17000	NOBE	20 GRF	2348.4	2350.8	26.4	20			0
	1415	MANI	4 S/F	2348.8	2350.7	4.9	46.6	15.5		
	606	MANI	4 S/F	2348.8	2350.8	4.9	11.8	3.9		
	8800	MANI	4 S/F	2348.8	2350.2	4.9	38.8	12.9		
	2695	MANI	4 S/F	2348.8	2350.2	4.9	165.8	55.3		
	4995	MANI	4 S/F	2348.8	2350.2	4.3	77.6	25.9		
	100	HIRA	7 C	2349.0E	2350	26.0D	6000	180		
	200	HIRA	46 C	2349.0E	2350.1	4.0	340	85		WR

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DAY OF MONTH	FREQUENCY	STATION	TYPE	STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1}		INT	POLARIZATION OR REMARKS
				UT	UT	MINUTES	PEAK	MEAN		
04	100	HIRA		2349.0E	2359		180			
	1400	SYDN	4 S/F	2349.3	2350.6	4.7				
	500	HIRA	3 S	2349.6	2350.8	4.0	12	7		WR
	700	SYDN	4 S/F	2350.0	2350.7	2.6				
05	202	IZMI	44 NS	0600.0E		360.0D	60			
	127	TORN	44 NS	0600.0E	0820.8	540.0D	600	.7		V2
	260	ONDR	44 NS	0810.0E		350.0D	105	8		
	536	ONDR	43 NS	0829.0		281.0	88			
	200	HIRA	44 NS	2100.0E	0100	600.0D	25	15		WL,WR
	100	HIRA	46 C	0016.9	0017.5	1.0	130	60		
	8800	MANI	4 S/F	0038.5	0040.1	1.8	19.4	6.5		
	4995	MANI	4 S/F	0038.5	0040.0	2.6	15.9	5.3		
	2695	MANI	3 S	0038.5	0040.1	2.8	7.8	2.6		
	200	HIRA	45 C	0039.6	0040.2	1.0	1000	275		WR
	700	SYDN	45 C	0039.8	0040.3	1.3				
	1400	SYDN	8 S	0039.9	0040.2	.9				
	100	HIRA	45 C	0039.9	0040.5	.8	2700	300		
	1415	MANI	4 S/F	0039.9	0040.1	1.1	106.4	35.5		
	606	MANI	8 S	0039.9	0039.9	4.2	354.0	23.6		SPIKE
	500	HIRA	46 C	0040.0	0040.0	2.5	1500	150		WL
	606	MANI	4 S/F	0158.0	0200.8	7.0	66.2	22.1		
	5730	IRKU		0200.5	0201.1	3.0	29			L
	5730	IRKU	45 C	020Q.5	0200.8		35			L
	700	SYDN	2 S/F	0200.6	0201.3	1.5				
	500	HIRA	46 C	0200.6	0200.6	3.5	130	30		ML
	17000	NOBE	20 GRF	0200.6	0208.1	24.8	13			O
	1400	SYDN	2 S/F	0200.7	0200.9	1.0				
	1415	MANI	4 S/F	0200.7	0201.0	3.3	17.9	6.0		
	2695	MANI	4 S/F	0200.7	0201.0	2.3	23.4	7.8		
	8800	MANI	4 S/F	0200.7	0201.0	1.0	46.0	15.3		
	4995	MANI	4 S/F	0200.7	0201.0	2.3	43.2	14.4		
	100	HIRA	7 C	0223.6	0224.8	2.0	67	30		
	1400	SYDN	2 S/F	0344.5	0345.7	3.1				
	1415	MANI	1 S	0345.0	0346.0	2.5	9.4	3.1		
	2695	MANI	3 S	0345.0	0345.9	2.5	17.0	5.7		
	8800	MANI	1 S	0345.0	0345.8	2.5	8.4	2.8		
	4995	MANI	3 S	0345.0	0345.8	2.5	12.7	4.2		
	5730	IRKU	45 C	0528.0	0529.7	13.0	26	8		L
	5730	IRKU		0528.0	0533.5		22			L
	5730	IRKU		0528.0	0530.2		26			L
	4995	MANI	4 S/F	0528.5	0533.7	5.9	45.7	15.2		
	2695	MANI	4 S/F	0528.5	0533.3	5.9	57.5	19.2		
	8800	MANI	1 S	0532.3	0533.7	2.7	4.2	1.4		
	500	HIRA	45 C	0532.5	0533.3	2.0	300	100		MR
	1400	SYDN	45 C	0532.8	0533.4	1.9				
	700	SYDN	45 C	0532.9	0533.3	1.8				
	200	HIRA	46 C	0533.0	0533.4	1.3	3400	470		WR
	606	MANI	4 S/F	0533.0	0533.4	1.3	14.7	4.9		
	1415	MANI	4 S/F	0533.0	0533.3	2.0	175.8	58.6		
	100	HIRA	7 C	0533.5	0533.5	1.7	29000	2600		
	9100	GORK	20 GRF	0621.2	0625.5	10.8	6.5	2.5		
	3100	CRIM	24 R	0713.0	0836.0		12			
	202	IZMI	41 F	0812.0	0813.5	2.0	300			
	127	TORN	45 C	0812.5	0813.0	2.0	110	33		
	9100	GORK	20 GRF	0828.9	0921.3	65.3	7	2.5		
	202	IZMI	8 S	0829.5	0829.5	.7	800	500		
	930	BORD	41 F	1021.6	1022.3	.7	53	2		
	202	IZMI	41 F	1030.0	1030.0	5.0	1400			
	930	BORD	8 S	1030.6	1030.6	.1	61	1		
	260	ONDR	8 S	1030.7	1030.7	.3	206 D			
	930	BORD	41 F	1056.3	1056.5	.3	67	2		
	9100	GORK	1 S	1056.5	1057.0	1.0	4	2		
	202	IZMI	5 S	1148.7	1149.0	1.0	630	350		
	29	UPIC	4 S/F	1158.9	1159.4	1.3				
	202	IZMI	41 F	1159.0	1159.2	2.0	750			
	33	UPIC	4 S/F	1159.1	1159.1	1.1				
	930	BORD	41 F	1159.8	1200.1	.3	30	2		
	9400	HUAN	3 S	1211.1	1212.2	2.0	19.2	7.0		L
	2950	GORK	1 S	1211.2	1211.6	1.1	6.9			
	9100	GORK	1 S	1211.5	1212.5	1.6	17.5	8		
	3000	POTS	3 S	1211.6	1212.4	1.9	8.8			
	9500	POTS	3 S	1211.9	1212.3	1.1	16			
	950	GORK	1 S	1213.0	1213.3	.7	1			
	650	GORK	1 S	1213.0	1213.6	1.0	9.5			
	9400	HUAN	21 GRF	1240.4	1317.0	144.4	44.9	30.0		L
	7000	SAOP	45 C	1249.6	1303.0	140.0	75.0			O TWO BURSTS
	8400	BERN	45	1250.0	1303.0	25.0	52.0			
	10400	BERN	45	1250.0	1303.0	25.0	40.0			
	2800	OTTA	21 GRF	1250.0	1440	220.0	14.0	7.0		
	3000	POTS	42 SER	1255.0	1257.8	10.0	14			
	2800	OTTA	45 C	1255.0	1258	10.0	10.8	5.2		
	9500	POTS	42 SER	1255.0	1303	10.0	32			
	3000	POTS		1255.0	1303.1		14			
	9400	HUAN	3 S	1256.0	1257.8	3.2	28.8	13.3		L

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					UT	UT	MINUTES	PEAK	MEAN		
05	9400	HUAN	3	S	1301.5	1303.3	3.4	41.6	19.2		O
	8400	BERN	8		1417.3	1418.0	1.5	37.0			
	10400	BERN	8		1417.3	1418.0	1.5	31.0			
	9400	HUAN	2	S/F	1417.3	1418.0	1.5	28.8	15.2		L
	2800	OTTA			1418.0E	1418	2.0D	9.4			
	930	BORD	41	F	1421.8	1421.8	2.4	30	2		
	2800	OTTA	1	S	1455.0	1455.5	2.0	3.2	1.8		
	9400	HUAN	2	S/F	1455.0	1455.8	1.9	12.8	10.5		L
	930	BORD	41	F	1522.0	1523.1	1.4	26	2		
	930	BORD	41	F	1525.0	1527.8	4.0	35	3		
	930	BORD	41	F	1609.8	1610.3	.5	47	2		
	2800	OTTA	2	S/F	1714.0	1715	2.0	4.8	2.6		
	2800	OTTA	1	S	1737.0	1737.2	1.0	3.6	1.8		
	2800	OTTA	4	S/F	1740.0	1741.4	4.0	66.0	8.8		
	7000	SAOP	4	S/F	1740.5	1741.4	2.4	48.0			28L
	2695	BOUL	4	SF	1741.5E	1742	1.5D	33	11		
	2800	OTTA	23	GRF	1750.0	1825	270.0	18.8	13.2		
	7000	SAOP	45	C	1811.5	1830.2	31.5	42.0			25L INVERTED PO
	2800	OTTA	4	S/F	1813.0	1819	8.0	11.8	5.9		
	2800	OTTA	45	C	1828.0	1830.2	4.0	16.4	5.3		
	2800	OTTA	22	GRF	1837.0	1838.5	11.0	6.2	3.1		
	2800	OTTA	8	S	1851.1	1851.1	.1	9.4			
	2800	OTTA	40	F	1921.0	1924	17.0	33.0			
	9400	HUAN	21	GRF	1940.2	1955.0	25.4	8.0	4.3		L
	9400	HUAN	2	S/F	1952.4	1953.1	1.7	11.1	7.4		L
	2800	OTTA	1	S	1953.0	1953.3	1.5	3.6	1.8		
	2695	PENT	4	S/F	2004.0	2004.5	4.0	37.6	9.4		
	9400	HUAN	2	S/F	2034.8	2035.8	4.2	15.9	7.8		L
	2800	OTTA	4	S/F	2035.1	2036	2.0	43.0	20.0		
	2695	BOUL	3	S	2036.0E	2037	2.5D	16	5		
	2800	OTTA	45	C	2045.5	2046.5	3.0	22.0	11.0		
	2800	OTTA	29	PBI	2048.5	2048.5	5.0	4.4	2.2		
	2800	OTTA	40	F	2105.0	2105.9	2.0	7.4			
	2695	PENT	8	S	2130.9	2130.9	.1	11.0			
	100	HIRA	42	SER	2139.4	2149	27.0	60000 D			
	2695	PENT	3	S	2142.5	2142.8	1.0	10.2	3.4		
	2695	PENT	4	S/F	2147.0	2149	6.0	65.0	15.0		
	200	HIRA	46	C	2148.0	2149	3.0	39000	2300		WR
	500	HIRA	46	C	2148.5	2148.7	4.0	700	100		MR
	9400	HUAN	4	S/F	2148.5	2149.1	1.8	95.4	33.5		L
	17000	NOBE	8	S	2148.8	2149.0	.4	62			L
	2695	BOUL	4	SF	2149.0E	2150	3.0D	61	20		
	9400	HUAN	3	S	2155.2	2155.8	2.4	20.7	7.6		L
	2695	PENT	1	S	2155.7	2156	3.0	8.0	3.0		
	2695	PENT	4	S/F	2200.5	2203	6.0	11.0	5.0		
	17000	NOBE	45	C	2201.0	2202.9	4.4	67			O
	9400	HUAN	4	S/F	2201.0	2203.0	4.0	62.0	22.8		L
	2695	PENT	240	R	2228.0	2240	12.0	5.4	2.7		
	700	SYDN	45	C	2312.1	2312.5	2.2				
	1400	SYDN	41	F	2314.5	2318.5	5.4				
	700	SYDN	41	F	2316.6	2317.2	17.4				
	700	SYDN			2316.6	2327.8					
	2930	VORO	45	C	2345.0	2350	15.0	192			
	500	HIRA	48	C	2346.7	2347.9	25.0	8600	500		WR
	100	HIRA	48	C	2346.8	2348.5	17.0	40000	1470		
	100	HIRA			2346.8	2356.2		4600			
	100	HIRA			2346.8	2351.8		4300			
	200	HIRA	48	C	2346.9	2350.2	10.0	8400	850		WR
	700	SYDN	48	C	2346.9	2348.1	24.8				
	8800	MANI	47	GB	2347.0	2347.5	7.6	1580.4	526.8		
	17000	NOBE	47	GB	2347.0	2347.3	1.3	2177			L
	1400	SYDN	48	C	2347.0	2348.5U	18.4				
	4995	MANI	47	GB	2347.0	2347.7	9.8	808.5	269.5		
	2695	MANI	47	GB	2347.2	2347.6	14.3	616.9	205.7		
	1415	MANI	4	S/F	2347.2	2348.9	14.3	472.5	157.5		
	17000	NOBE	29	PBI	2348.3	2348.2	7.5	76			O
06	202	IZMI	44	NS	0600.0E		360.0D	25			
	127	TORN	43	NS	0642.0	1050.5	500.0	530	9.5		V1
	260	ONDR	44	NS	0756.0E		354.0D	209 D	14		
	536	ONDR	44	NS	0756.0E		354.0D	130	6		
	33	UPIC	43	NS	0801.0		261.3				
	29	UPIC	43	NS	0801.1	0838.6	260.2				
	700	SYDN	40	F	0059.1	0101.1	4.3				
	1400	SYDN	40	F	0100.9	0101.6	1.4				
	1415	MANI	4	S/F	0101.0	0101.9	3.0	26.0	8.7		III
	700	SYDN	8	S	0145.7	0145.9	.3				
	1400	SYDN			0148.7	0229.9					
	1400	SYDN			0148.7	0239.2					
	1400	SYDN	42	SER	0148.7	0148.9	54.4				
	1400	SYDN			0148.7	0154.8					
	1400	SYDN			0148.7	0236.0					
	1400	SYDN			0148.7	0218.7					
	1400	SYDN			0148.7	0226.6					
	700	SYDN	45	C	0218.6	0218.8	.9				

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					UT	UT	MINUTES	PEAK	MEAN		
06	2695	MANI	1	S	0219.0	0219.1	1.0	4.3	1.4		
	1415	MANI	4	S/F	0219.0	0219.2	1.0	90.2	30.1		
	4995	MANI	1	S	0219.1	0219.2	.6	4.9	1.6		III
	2930	VORO	45	C	0225.0	0229	10.0	51			
	700	SYDN	2	S/F	0226.1	0226.5	.9				
	200	HIRA	42	SER	0226.6	0230.7	15.0	25000			O
	700	SYDN	8	S	0226.8	0226.9	.2				
	2695	MANI	4	S/F	0229.0	0230.5	4.0	48.9	16.3		
	1415	MANI	4	S/F	0229.0	0230.7	6.4	101.2	33.7		
	8800	MANI	4	S/F	0229.2	0230.5	3.8	23.1	7.7		
	4995	MANI	4	S/F	0229.2	0230.5	3.8	59.3	19.8		
	5730	IRKU	45	C	0230.0	0230.0	2.0	20	5		L
	5730	IRKU			0230.0	0230.8		9			
	500	HIRA	48	C	0230.0	0230.0	3.0	15000	3000		MR
	700	SYDN	48	C	0230.0	0230.2	4.4				
	1400	SYDN	45	C	0230.0	0230.2	6.6				
	2930	VORO	3	S	0250.0	0253	10.0	31			
	700	SYDN	42	SER	0252.6	0254.0	8.9				
	700	SYDN			0252.6	0300.5					
	17000	NOBE	7	C	0252.6	0254.0	3.7	24			L
	8800	MANI	3	S	0253.5	0254.6	4.5	18.5	6.2		
	2695	MANI	4	S/F	0253.5	0254.8	4.5	38.3	12.8		
	4995	MANI	3	S	0253.5	0254.7	4.5	24.7	8.2		
	1415	MANI	4	S/F	0253.5	0255.5	4.5	59.8	19.9		
	17000	NOBE	20	GRF	0304.7	0321.3	43.0	22			O
	5730	IRKU	21	GRF	0314.6	0315.5	4.0	17	5		L
	8800	MANI	3	S	0315.0	0316.5	5.0	18.5	6.2		
	4995	MANI	3	S	0315.0	0315.7	2.0	14.8	4.9		
	1415	MANI	4	S/F	0317.0	0318.2	4.5	159.2	53.1		
	2695	MANI	4	S/F	0318.0	0318.9	2.0	23.4	7.8		
	606	MANI	1	S	0318.0	0318.4	1.0	4.7	1.6		
	1415	MANI	4	S/F	0326.7	0327.1	5.3	103.9	34.6		III
	1415	MANI	4	S/F	0335.5	0339.7	8.0	174.8	58.3		
	1400	SYDN	40	F	0411.2	0413.5	5.0				
	700	SYDN	40	F	0413.0	0413.9	2.4				
	1415	MANI	4	S/F	0413.0	0419.3	6.7	27.6	9.2		III
	606	MANI	8	S	0414.0	0414.6	6.5	436.1	145.3		
	700	SYDN	48	C	0416.2	0417.9	3.2				
	17000	NOBE	45	C	0505.5	0517.6	28.0	480			L
	5730	IRKU			0506.0	0517.6		92 D			R
	5730	IRKU			0506.0	0528.1		71			L
	5730	IRKU			0506.0	0531.3		36			L
	5730	IRKU	45	C	0506.0	0509.0	29.0	92 D			L
	5730	IRKU			0506.0	0525.6		92 D			L
	8800	MANI	47	GB	0506.0	0518.2	29.4	877.8	292.6		
	2695	MANI	4	S/F	0506.0	0526.3	28.8	170.4	56.8		
	1415	MANI	47	GB	0506.0	0515.3	29.0	590.6	196.9		
	4995	MANI	4	S/F	0506.0	0518.2	29.1	432.3	144.1		
	1400	SYDN	48	C	0506.1	0510.9	32.2				
	1400	SYDN			0506.1	0513.8					
	35000	NAGO	28	PRE	0507.0	0514	7.0	15			
	200	HIRA	42	SER	0507.0	0510.2	6.0	2900			O
	100	HIRA	7	C	0507.2	0507.7	.8	800	540		
	500	HIRA	48	C	0508.4	0512.7	40.0	900	100		SR
	700	SYDN	48	C	0508.5	0512.3	25.5				
	606	MANI	4	S/F	0509.0	0513.5	24.5	323.8	107.9		
	9100	GORK	46	C	0512.0E	0516.0	215.0D	140 D			
	9100	GORK			0512.0E	0518.0		700			
	650	GORK			0514.0E	0523.2		50			
	650	GORK			0514.0E	0531.6		37			
	35000	NAGO	5	S	0514.0	0518	9.0	230			
	650	GORK			0514.0E	0528.1		80			
	650	GORK	46	C	0514.0E	0517.0	20.1	74			
	2950	GORK			0515.0E	0523.0		136			
	950	GORK	46	C	0515.0E	0515.0E	312.0E	55			
	2950	GORK			0515.0E	0526.7		108			
	950	GORK			0515.0E	0856.3		41			
	2950	GORK	46	C	0515.0E	0519.5	20.0E	134			
	950	GORK			0515.0E	0939.0		54			
	35000	NAGO	29	PBI	0523.0	0525	67.0	24			
	9100	GORK	29	PBI	0533.5	0533.8	61.4	24	10		
	17000	NOBE	29	PBI	0533.5	0533.8	66.0	54			O
	2950	GORK	29	PBI	0535.0E	0536.0	80.0	40			
	650	GORK	23	GRF	0537.1	0601.5	35.4	8.5			
	700	SYDN	8	S	0542.1	0542.2	.2				
	1400	SYDN	8	S	0542.2	0542.3	.2				
	650	GORK	1	S	0545.8	0546.5	1.3	4.5			
	2695	MANI	1	S	0555.0	0556.2	2.3	8.5	2.8		
	8800	MANI	3	S	0555.0	0555.4	2.0	13.9	4.6		
	4995	MANI	3	S	0555.0	0555.3	1.0	17.3	5.8		
	1415	MANI	1	S	0555.0	0555.4	1.3	2.8	1.0		
	606	MANI	1	S	0555.0	0555.4	1.0	10.2	3.4		
	650	GORK	1	S	0604.7	0605.2	1.4	11			
	5730	IRKU	20	GRF	0706.0	0708.8	11.0	43	16		
	202	IZMI	41	F	0711.5	0712.5	4.5	1000			

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				UT	UT	MINUTES	PEAK	MEAN		
06	202	IZMI	41 F	0725.2	0725.3	1.0	1370			
	1470	POTS	23 GRF	0740.0	0903.5	153.0	8.5			
	9500	POTS	23 GRF	0740.0	0815	148.0	38			
	930	BORD	8 S	0744.0	0744.2	.2	19	2		
	9100	GORK	21 GRF	0744.8		196.0D				
	3000	POTS	23 GRF	0745.0	0815	150.0	21			
	2950	GORK	21 GRF	0749.0						
	650	GORK	22 GRF	0752.6		128.7				
	3100	CRIM	47 GB	0758.0	0920.0	158.0	270	140		
	3100	CRIM		0758.0	0939.0		421			
	1470	POTS	8 S	0759.5	0759.7	.5	11			
	3000	POTS	3 S	0759.5	0800.0	1.5	29			
	2695	MANI	3 S	0759.5	0759.8	1.3	25.6	8.5		
	8800	MANI	1 S	0759.5	0759.8	1.3	9.2	3.1		
	606	MANI	3 S	0759.5	0759.8	.5	51.0	17.0		
	1415	MANI	3 S	0759.5	0759.7	.7	27.6	9.2		
	4995	MANI	3 S	0759.5	0759.9	1.3	42.0	14.0		
	930	BORD	8 S	0759.7	0759.7	.2	75	2		
	9100	GORK	1 S	0800.0	0800.3	.6	8.5	4		
	2950	GORK	1 S	0800.1	0800.2	.7				
	5730	IRKU		0803.0	0829.6		80			L
	5730	IRKU	45 C	0803.0	0804.9	44.0	19			L
	5730	IRKU		0803.0	0814.5		44			L
	5730	IRKU		0803.0	0827.9		89			L
	5730	IRKU		0803.0	0838.3		89			L
	9100	GORK	2 SF	0814.3	0814.8	1.5	19	9		
	202	IZMI	41 F	0823.5	0827.0	16.5	2600			
	930	BORD	40 F	0825.0	0826.9	15.0	94	8		
	8400	BERN	8	0825.0	0828.1	13.0	93.0			OPR
	127	TORN	42 SER	0825.5	0827.3	15.5	7800			
	1415	MANI	4 S/F	0825.5	0827.8	7.5	46.0	15.3		
	606	MANI	4 S/F	0825.5	0829.8	8.7	283.1	94.4		
	2695	MANI	4 S/F	0825.6	0827.8	7.4	61.8	20.6		
	2650	DWIN	1 S	0826.0	0828	6.0	50	25		
	8800	MANI	4 S/F	0826.0	0829.5	7.0	175.6	58.5		
	4995	MANI	4 S/F	0826.0	0827.8	7.0	59.3	19.8		
	202	IZMI	47 GB	0826.5	0827.0	1.0	2600	1400		
	9500	POTS	4 S/F	0826.5	0827.8	8.5	126			
	1470	POTS	4 S/F	0826.6	0827.9	5.9	55			
	2950	GORK	45 C	0826.7	0827.5	5.2	30			
	2950	GORK		0826.7	0830.0		12			
	3000	POTS	4 S/F	0826.8	0827.1	6.2	63			
	9100	GORK	4 SF	0827.0	0828.1	4.2	120			
	1470	POTS	8 S	0838.0	0838.4	.8	30			
	9500	POTS	8 S	0838.1	0838.2	.6	126			
	8800	MANI	3 S	0838.1	0838.3	.5	73.9	24.6		
	2695	MANI	3 S	0838.1	0838.3	.5	46.9	15.6		
	4995	MANI	3 S	0838.1	0838.3	.5	66.7	22.2		
	606	MANI	3 S	0838.1	0838.3	.5	53.6	17.9		
	1415	MANI	3 S	0838.1	0838.3	.5	32.2	10.7		
	8400	BERN	4	0838.2	0838.4	2.0	93.0			OPR
	3000	POTS	8 S	0838.2	0838.5	.8	57			
	2950	GORK	3 S	0838.5	0838.7	.5	37			
	9100	GORK	1 S	0851.5	0851.8	.7	6	3		
	9100	GORK	46 C	0853.2	0855.2	9.5	47			
	9100	GORK		0853.2	0859.4		59			
	8400	BERN	46	0853.4	0938.0U	135.0	160.0D			OPR
	9500	POTS	4 S/F	0853.8	0859.4	8.7	82			
	1470	POTS	4 S/F	0854.4	0856.0	2.3	20			
	930	BORD	41 F	0855.0	0856.3	2.0	69	4		
	3000	POTS	4 S/F	0855.0	0856.1	7.0	26			
	930	BORD	3 S	0913.0	0941	47.0	70	36		
	2650	DWIN	47 GB	0913.0	0938 U	60.0	400 D			
	10715	DWIN	47 GB	0913.0		60.0	220 D			
	9100	GORK	45 C	0913.5	0920.5	30.4	240			
	9100	GORK		0913.5	0937.8		260			
	2950	GORK	45 C	0913.5	0920.3	45.0	180			
	2950	GORK		0913.5	0938.2		300			
	9500	POTS	45 C	0913.5	0939	45.0	512			
	3000	POTS	46 C	0913.5	0938.5	57.0	600			
	1470	POTS	45 C	0913.5	0939	61.0	223			
	650	GORK	20 GRF	1007.9	1022.0	4.5	2			
	930	BORD	41 F	1101.0	1103.4	3.0	125	4		
	9400	HUAN	2 S/F	1101.1	1103.2	4.5	16.3	7.2		0
	202	IZMI	41 F	1101.3	1101.3	2.5	1400			
	9400	HUAN	20 GRF	1135.3	1149.0	36.8	14.6	7.8		L
	930	BORD	45 C	1137.0	1140.2	8.0	153	25		
	202	IZMI	46 C	1137.2	1137.2	5.6	550	300		
	127	TORN	48 C	1137.3	1142	5.8	620	86		
	8400	BERN	27	1215.0	1245.9	50.0	40.0			OPR
	7000	SAOP	1 S	1219.2	1220.0	1.0	8.0			26R
	7000	SAOP	41 F	1219.2						THREE BURSTS
	9400	HUAN	1 S	1224.7	1226.2	4.1	8.1	5.9		0
	7000	SAOP	1 S	1225.4	1226.9	2.8	10.0			29L
	7000	SAOP	45 C	1232.0	1245.9	17.0	18.0			20L

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				UT	UT	MINUTES	PEAK	MEAN		
06	9400	HUAN	2 S/F	1243.6	1244.4	3.2	11.4	6.0		O
	8400	BERN	27	1306.0	1318.6	30.0	20.0			OPR
	7000	SAOP	45 C	1308.4	1318.7		36.0			28L CALIBRATION
	9400	HUAN	22 GRF	1311.2	1318.6	21.6	26.0	9.3		L
	2800	OTTA	2 S/F	1316.5	1318.8	4.5	8.8	4.4		
	2800	OTTA	1 S	1336.0	1337	2.0	3.8	1.9		
	8400	BERN	1	1347.0	1348.0	2.5	20.0			OPR
	9400	HUAN	2 S/F	1347.0	1348.0	2.5	19.5	8.9		L
	930	BORD	45 C	1347.7	1348	.6	54	3		
	2800	OTTA	8 S	1348.0	1348.1	.4	6.6	3.3		
	7000	SAOP	45 C	1357.0	1449.6		1533.0			1L INVERTED POL
	2800	OTTA	24OAR	1400.0	1435	35.0	6.8			
	8400	BERN	27	1400.0	1416.2	41.0	62.0			OPR
	2650	DWIN	1 S	1412.0	1415	5.0	50	30		
	9400	HUAN	20 GRF	1412.5	1416.4	24.2	29.3	15.3		R
	930	BORD	45 C	1413.0	1419.9	7.0	50	11		
	2800	OTTA	20 GRF	1418.0E	1420	15.0D	8.2			
	930	BORD	46 C	1444.0	1451	16.0	463	11		
	2800	OTTA	28 PRE	1445.0	1446.5	3.5	16.4	8.0		
	8400	BERN	46	1445.0	1450.0U	21.0	170.0D			OPR
	9400	HUAN	4 S/F	1445.7	1449.8	6.3	317.5	95.2		L
	2650	DWIN	45 C	1446.0	1450	9.0	230	100		
	10715	DWIN	45 C	1446.0	1450	8.0	180	100		
	228	HARS	48 C	1448.0	1448.8U	4.5	1000 D	200		
	2800	OTTA	45 C	1448.5	1450	5.5	268.0	77.0		
	2695	BOUL	4 SF	1449.0E	1450.5	5.5D	222	74		
	9400	HUAN	30 PBI	1452.0	1452.0	29.3	40.7	6.2		L
	2800	OTTA	29 PBI	1454.0	1454	12.0	14.2	4.8		
	10400	BERN	4	1506.0	1511.6	13.0	50.0			OPR
	8400	BERN	4	1506.0	1511.6	13.0	51.0			OPR
	930	BORD	45 C	1510.0	1512	3.0	25	8		
	9400	HUAN	4 S/F	1510.7	1511.7	5.6	47.2	24.1		L
	2800	OTTA	45 C	1510.8	1511.7	5.0	22.0	7.4		
	2800	OTTA	21 GRF	1555.0	1645	95.0	10.8	5.0		
	9400	HUAN	4 S/F	1630.6	1633.8	4.5	65.1	25.6		L
	2800	OTTA	3 S	1633.0	1633.7	1.5	11.0	3.8		
	9400	HUAN	29 PBI	1635.1	1635.1	43.6	11.4	6.8		O
	2800	OTTA	24O R	1745.0	1900	75.0	10.8	5.4		
	9400	HUAN	21 GRF	1753.6	1912.8	199.1	42.3	27.3		L
	9400	HUAN	8 S	1830.0	1830.3	.6	47.2	27.8		L
	7000	SAOP	45 C	1849.0	1910.2	38.1	45.0			8L
	9400	HUAN	2 S/F	1901.3	1902.0	2.7	17.9	9.1		O
	9400	HUAN	4 S/F	1908.2	1910.3	3.9	34.2	13.0		L
	9400	HUAN	1 S	1915.8	1916.1	1.6	8.1	4.3		L
	2695	PENT	1 S	2011.5	2013	3.0	3.2	1.6		
	9400	HUAN	2 S/F	2048.8	2049.5	1.2	22.8	9.8		L
	2800	OTTA	1 S	2049.0	2049.7	1.0	3.6	2.0		
	2695	PENT	23 GRF	2055.0	2105	65.0	4.6	3.8		
	9400	HUAN	4 S/F	2055.7	2056.7	2.7	97.7	36.0		L
	2695	PENT	1 S	2140.2	2141.4	2.0	7.8	3.6		
	2695	PENT	4 S/F	2226.0	2228	6.0	37.6	14.2		
	1415	MANI	4 S/F	2226.3	2228.1	6.4	62.2	20.7		
	606	MANI	3 S	2227.5	2229.5	2.8	17.7	5.9		
	2695	PENT	45 C	2233.0	2235.4	7.0	16.0	8.0		
	35000	NAGO	20 GRF	2300.0	2330	59.0	28			
	700	SYDN	8 S	2300.6	2300.7	.3				
	700	SYDN	8 S	2308.9	2309.0	.3				
	606	MANI	8 S	2316.3	2322.3	7.7	461.9	154.0		SPIKE
	1415	MANI	4 S/F	2316.7	2319.3	7.3	27.1	9.0		
	700	SYDN	41 F	2317.0	2318.4	7.3				
	1400	SYDN	41 F	2317.7	2319.2	5.7				
	2695	MANI	1 S	2321.1	2323.4	5.9	7.2	2.4		
	4995	MANI	4 S/F	2321.1	2323.1	6.1	18.9	6.3		
	8800	MANI	4 S/F	2321.1	2322.3	5.9	23.4	7.8		
	2930	VORO	3 S	2341.0	2348	19.0	183 D			
07	200	HIRA	44 NS	0025.0E	0030	420.0D	70	40		WR
	100	HIRA	44 NS	0030.0E		420.0D		68		
	202	IZMI	44 NS	0600.0E		360.0D	40			
	127	TORN	43 NS	0640.0	1058	520.0D	530	5.1		V1
	260	ONDR	44 NS	0802.0E		361.0D	189	9		
	200	HIRA	44 NS	2100.0E	2300	600.0D	40	35		WR
	100	HIRA	44 NS	2100.0E	0450	600.0D	25	12		
	1400	SYDN	45 C	0009.1	0009.7	1.1				
	4995	MANI	4 S/F	0101.4	0102.3	6.4	32.4	10.8		
	8800	MANI	4 S/F	0101.4	0102.9	7.1	73.5	24.5		
	17000	NOBE	20 GRF	0101.9	0102.9	28.0	19			L
	35000	NAGO	20 GRF	0105.0	0115	65.0	18			
	606	MANI	4 S/F	0110.6	0111.0	3.1	28.7	9.6		
	17000	NOBE	20 GRF	0139.9	0144.8	60.0	28			L
	35000	NAGO	20 GRF	0330.0	0350	50.0	15			
	8800	MANI	4 S/F	0345.3	0346.0	1.9	52.2	17.4		
	17000	NOBE	20 GRF	0345.3	0345.9	120.0	37			L
	4995	MANI	3 S	0345.3	0346.0	1.9	16.2	5.4		
	5730	IRKU	45 C	0345.5	0346.0		22			

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DAY OF MONTH	FREQUENCY	STATION	TYPE		STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1}		INT	POLARIZATION OR REMARKS
					UT	UT	MINUTES	PEAK	MEAN		
07	5730	IRKU			0345.5	0347.2		15			
	8800	MANI	3	S	0504.8	0506.9	3.4	75.0	25.0		
	4995	MANI	3	S	0504.9	0506.8	3.1	18.5	6.2		
	5730	IRKU			0506.5	0506.7		11			
	9100	GORK	4	SP	0519.0	0520.3	6.5	30			
	5730	IRKU			0519.1	0520.0		20			
	4995	MANI	3	S	0519.7	0520.3	2.2	16.2	5.4		
	8800	MANI	3	S	0519.7	0520.0	1.8	16.3	5.4		
	9100	GORK	21	GRF	0607.7	0640.9	108.0	26	10		
	17000	NOBE	21	GRF	0607.9	0615.0	33.0	16			0
	17000	NOBE	8	S	0608.1	0608.3	.4	58			L
	9100	GORK	1	S	0608.4	0608.6	.7	27	13		
	8800	MANI	3	S	0608.4	0608.7	.6	32.6	10.9		
	4995	MANI	1	S	0608.4	0608.7	.6	9.2	3.1		
	17000	NOBE	8	S	0609.4	0609.5	.4	29			0
	2950	GORK	20	GRF	0616.3	0709.0	108.0	13.4			
	202	IZMI	4	S/F	0637.5	0638.0	2.0	460	250		
	2950	GORK	20	GRF	0839.0	0920.0	150.0E	16	8		
	9100	GORK	21	GRF	0846.1	0927.9	145.0E	31	11		
	9500	POTS	22	GRF	0922.0	0923.5	58.0	13			
	9100	GORK	2	SP	0922.2	0923.7	3.0	12	5.5		
	33	UPIC	42	SER	1037.2	1039.5	101.6				
	29	UPIC	42	SER	1038.1	1217.4	100.8				
	9100	GORK	2	SP	1051.8	1052.4	1.3	12	6		
	536	ONDR	42	SER	1052.0		190.0	21			
	9500	POTS	3	S	1133.2	1134.9	5.3	21			
	10400	BERN	3		1133.3	1134.9	4.0	18.0			
	9400	HUAN	3	S	1133.3	1134.5	3.4	21.9	10.5		L
	8400	BERN	3		1133.3	1134.9	4.0	23.0			
	3000	POTS	4	S/F	1133.5	1134.6	5.0	46			
	1470	POTS	3	S	1133.8	1135.0	4.7	33			
	930	BORD	45	C	1134.0	1135	4.0	94	7		
	2650	DWIN	1	S	1134.0	1135	4.0	40	20		
	9500	POTS	22	GRF	1203.0	1209	32.0	17			
	9400	HUAN	22	GRF	1204.3	1209.3	26.7	20.2	10.1		L
	3000	POTS	20	GRF	1207.0	1218.4	53.0	11			
	127	TORN	47	GB	1216.0	1217.6	3.2	660	120		
	9400	HUAN	20	GRF	1247.8	1346.3	88.9	11.8	6.2		0
	7000	SAOP	40	F	1340.0						SUNSET
	9400	HUAN	22	GRF	1504.3E	1509.0	141.2	13.5	5.2		0
	2800	OTTA	22	GRF	1605.0	1735	120.0	5.8	3.8		
	9400	HUAN	22	GRF	1830.5	2034.3	169.3	77.5	23.4		L
	2800	OTTA	240	R	1850.0	1910	20.0	3.2	1.6		
	2800	OTTA	1	S	1946.0	1946.5	1.5	5.4	2.5		
	2800	OTTA	20	GRF	2000.0	2038	140.0	14.0	7.2		
	17000	NOBE	7	C	2213.0	2213.2	1.5	39			L
08	202	IZMI	44	NS	0600.0E		360.0D	35			
	127	TORN	43	NS	0640.0	1148.5	520.0D	220	60		V1
	536	ONDR	44	NS	0800.0E		354.0D	390 D	59		
	260	ONDR	44	NS	0800.0E		354.0D	182 D	34		
	33	UPIC	43	NS	0925.2	0938.2	127.5U				
	29	UPIC	43	NS	0927.4	1132.1	129.3U				
	100	HIRA	44	NS	2105.0E	0005	600.0D	180	56		
	200	HIRA	44	NS	2105.0E	0550	600.0D	85	55		WR
	17000	NOBE	21	GRF	0029.8	0033.4	43.0	11			0
	17000	NOBE	8	S	0032.8	0032.9	.3	18			0
	2930	VORO	45	C	0110.0	0115	20.0	199			
	2695	MANI	4	S/F	0110.0	0115.6	15.8	341.9	113.9		
	1415	MANI	4	S/F	0110.0	0116.4	25.0	108.1	36.0		
	8800	MANI	4	S/F	0111.5	0115.3	14.3	260.7	86.9		
	4995	MANI	4	S/F	0111.5	0115.2	14.3	231.0	77.0		
	606	MANI	4	S/F	0113.0	0122.2	20.5	76.2	25.4		
	500	HIRA	45	C	0113.0	0122.0	17.0	200	60		WL
	17000	NOBE	45	C	0113.3	0115.2	10.2	78			0
	5730	IRKU			0113.6	0120.7		87			L
	5730	IRKU	45	C	0113.6	0115.3	12.0	106			L
	35000	NAGO	21	GRF	0115.0	0204	75.0	33			
	200	HIRA	45	C	0115.2	0116	2.0	60	27		0
	200	HIRA	45	C	0117.6	0119.4	35.0	6600	82		0
	200	HIRA			0117.6	0121		150			0
	200	HIRA			0117.6	0126		130			0
	100	HIRA	46	C	0118.2	0119	1.8	17000	2400		
	17000	NOBE	29	PBI	0123.5	0123.6	36.0	33			0
	2930	VORO	45	C	0200.0	0205	10.0	116			
	606	MANI	4	S/F	0201.0	0204.0	4.0	29.5	9.8		
	5730	IRKU			0201.5	0208.6		41			L
	5730	IRKU	45	C	0201.5	0204.4	15.0	91	18		L
	17000	NOBE	46	C	0201.9	0204.4	9.4	274			L
	1415	MANI	4	S/F	0204.3	0204.5	6.4	11.8	3.9		
	4995	MANI	4	S/F	0204.3	0204.5	8.9	126.5	42.2		
	2695	MANI	4	S/F	0204.3	0204.5	7.3	56.2	18.7		
	8800	MANI	4	S/F	0204.3	0204.5	12.2	377.6	125.9		
	17000	NOBE	29	PBI	0211.3	0211.3	18.0	28			0
	17000	NOBE	20	GRF	0333.1	0336.4	22.0	16			L

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DAY OF MONTH	FREQUENCY	STATION	TYPE		STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1}		INT	POLARIZATION OR REMARKS
					UT	UT	MINUTES	PEAK	MEAN		
08	4995	MANI	2	S/F	0334.0	0334.2	3.0	6.9	2.3		
	1415	MANI	2	S/F	0334.1	0334.2	5.1	8.7	2.9		
	2695	MANI	2	S/F	0334.1	0334.2	2.9	6.2	2.1		
	8800	MANI	3	S	0334.8	0335.3	2.6	24.5	8.1		
	606	MANI	2	S/F	0337.7	0338.7	2.1	11.8	3.9		
	100	HIRA	46	C	0340.8	0341.9	2.2	230	90		
	2695	MANI	4	S/F	0428.3	0429.3	3.7	27.0	9.0		
	1415	MANI	4	S/F	0428.3	0429.3	2.9	30.8	10.2		
	5730	IRKU	22	GRF	0428.5	0430.4	12.0	16			L
	5730	IRKU			0428.5	0434.9		23			L
	4995	MANI	4	S/F	0428.6	0430.5	9.4	25.3	8.4		
	8800	MANI	4	S/F	0428.8	0432.0	9.2	64.4	21.4		
	606	MANI	4	S/F	0428.8	0429.1	7.5	28.3	9.4		
	17000	NOBE	46	C	0429.0	0430.3	11.0	43			L
	17000	NOBE	1	S	0452.2	0452.6	.8	19			R
	8800	MANI	4	S/F	0452.5	0452.9	2.0	42.9	14.3		
	4995	MANI	4	S/F	0452.7	0452.9	1.8	23.0	7.7		
	9100	GORK	23	GRF	0519.7E	0612.4	93.0D	15			
	950	GORK	4	SF	0526.0	0526.5	4.9	8.2			
	650	GORK	3	S	0526.6	0526.7	.4	32	16		
	17000	NOBE	1	S	0543.8	0544.1	.7	22			R
	5730	IRKU			0613.0	0615.7		25			L
	5730	IRKU	21	GRF	0613.0	0615.2	5.0	23	10		L
	9100	GORK	2	SF	0613.8	0616.0	3.5	29			
	4995	MANI	4	S/F	0614.2	0616.0	2.9	43.7	14.6		
	8800	MANI	4	S/F	0614.2	0616.0	2.9	30.7	10.2		
	2695	MANI	4	S/F	0615.0	0616.0	2.1	18.7	6.2		
	1415	MANI	4	S/F	0615.0	0616.3	2.1	11.1	3.7		
	606	MANI	4	S/F	0615.0	0622.9	12.0	6.7	2.2		
	606	MANI	8	S	0640.7	0641.7	13.3	180.3	60.1		SPIKE
	950	GORK	4	SF	0640.9	0641.0	3.7	16			
	5730	IRKU	45	C	0641.0	0641.5	7.0	25	15		L
	5730	IRKU			0641.0	0644.2		30			L
	1415	MANI	4	S/F	0641.0	0641.7	10.7	9.5	3.2		
	4995	MANI	4	S/F	0641.0	0641.7	10.7	23.0	7.7		
	2695	MANI	4	S/F	0641.0	0641.7	10.7	35.4	11.8		
	8800	MANI	4	S/F	0641.0	0644.2	10.7	39.9	13.3		
	2950	GORK	4	SF	0641.2	0641.8	5.4	11	5.5		
	650	GORK	41	F	0641.3	0642.3	3.4	80 D			
	650	GORK			0641.3	0644.2		80 D			
	9100	GORK	46	C	0641.4	0642.9	5.3	28			
	9100	GORK			0641.4	0644.4		49			
	9100	GORK	21	GRF	0703.7	0737.7	74.3	18	6		
	9500	POTS	4	S/F	0733.5	0735.0	3.5	46			
	9100	GORK	4	SF	0733.8	0735.6	3.5	39			
	650	GORK			0802.3	0905.3		340			
	650	GORK	47	GB	0802.3	0813.4	188.3	30			
	650	GORK			0802.3	0900.5		310			
	950	GORK	47	GB	0803.5	0812.6	222.0E	287			
	950	GORK			0803.5	0858.1		1490			
	950	GORK			0803.5	0908.0U		3700 D			
	950	GORK			0803.5	0924.2		290			
	2950	GORK	21	GRF	0809.6	0909.0	187.0E	90			
	10715	DWIN	45	C	0810.0	0812	5.0	210	70		
	930	BORD	45	C	0810.0	0812.1	11.0	966	30		
	1470	POTS	4	S/F	0810.0	0811.5	15.0	207			
	9500	POTS	4	S/F	0810.0	0811.7	8.0	313			
	8400	BERN	4		0810.2	0811.9	19.0	208.0			
	10400	BERN	4		0810.2	0811.9	19.0	260.0			
	9100	GORK	4	SF	0810.3	0812.3	3.8	110			
	5730	IRKU			0810.5	0812.3		85 D			L
	5730	IRKU	45	C	0810.5	0810.9	8.0	16			L
	5730	IRKU			0810.5	0813.0		84			L
	5730	IRKU			0810.5	0812.0		85 D			L
	606	MANI	4	S/F	0810.6	0813.0	8.7	90.9	30.3		
	4995	MANI	4	S/F	0810.6	0812.0	7.6	161.0	53.7		
	8800	MANI	4	S/F	0810.6	0812.0	7.6	233.3	77.8		
	1415	MANI	4	S/F	0810.6	0811.7	7.6	648.8	216.3		
	2695	MANI	4	S/F	0810.6	0813.0	7.6	187.2	62.4		
	2650	DWIN	45	C	0811.0	0813	9.0	330	100		
	127	TORN	48	C	0811.3	0812.0	2.5	330	87		
	2950	GORK	45	C	0811.4	0812.8	3.8	174			
	2950	GORK			0811.4	0813.4		168			
	3000	POTS	4	S/F	0811.5	0812.9	11.0	172			
	202	IZMI	45	C	0812.5	0813.5	2.5	1700	700		
	9500	POTS	23	GRF	0828.0	1001.4	242.0	139			
	9100	GORK	23	GRF	0829.4		167.0				
	1470	POTS	23	GRF	0830.0	0937.5	235.0	44			
	3000	POTS	23	GRF	0830.0	0937.3	230.0	97			
	930	BORD		PRE	0832.0	0839	17.5	570	120		
	1415	MANI	4	S/F	0833.0	0840.7	20.0	227.1	75.7		
	606	MANI	4	S/F	0833.0	0850.8	29.0	94.4	31.5		
	1470	POTS	46	C	0838.0	0915.5	57.0	940			
	127	TORN	27	RF	0838.0		91.0	100 U			
	202	IZMI	25	R	0840.0	0848.5	80.0	850	350		

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DAY OF MONTH	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY MEAN	INT	POLARIZATION OR REMARKS
08	930	BORD		0849.5	0910.5		6236			
	930	BORD		0849.5	0851		3550			
	930	BORD		0849.5	0905		7400			
	930	BORD		0849.5	0902		7400			
	930	BORD		0849.5	0900.5		6191			
	930	BORD		0849.5	0859		3550			
	930	BORD	GB	0849.5	0907.7	30.5	9664	3473		
	9100	GORK	4 SF	0913.7	0915.7	3.5	42			
	8400	BERN	3	0914.5	0915.3	4.0	32.0			
	10400	BERN	3	0914.5	0915.3	4.0	28.0			
	930	BORD	PBI	0920.0	0924	24.0	793	130		
	9100	GORK	1 S	0937.8	0938.0	.5	13.5	6.5		
	9100	GORK	3 S	0942.0	0942.3	1.5	31	15		
	10715	DWIN	1 S	1000.0	1001	3.0	30	20		
	9100	GORK	3 S	1001.5	1001.9	2.0	35			
	10715	DWIN	45 C	1019.0		16.0	170 D			
	2650	DWIN	45 C	1021.0	1022	2.0	320 D			
	1470	POTS	4 S/F	1021.0	1025.0	5.0	128			
	3000	POTS	4 S/F	1021.4	1022.4	1.6	124			
	8400	BERN	27	1021.8	1022.7	13.0	22.0			OPR
	10400	BERN	27	1021.8	1022.7	13.0	10.0			OPR
	2950	GORK	4 SF	1021.9	1022.7	1.2	126			
	9100	GORK	1 S	1022.3	1023.1	3.8	17			
	9400	HUAN	28 PRE	1048.6E	1120.5	31.9	158.3	32.6		L
	7000	SAOP	45 C	1118.0	1121.6		1748.0			1R
	8400	BERN	47	1118.6	1121.8	85.0	1482.0			
	35000	BERN	47	1118.6	1121.8	85.0	2000.0			
	10400	BERN	47	1118.6	1121.8	85.0	1400.0			
	930	BORD	45 C	1119.0	1122	20.0	1260	315		
	9400	HUAN	45 C	1120.5	1121.8	14.4	2149.3	345.8		L
	228	HARS	48 C	1121.5	1123.0U	7.0	2800 D	400		
	113	POTS	41 F	1121.8	1122.6	6.4	14000	200		
	1470	POTS	4 S/F	1122.0E	1123 U	8.0D	373 U			
	202	IZMI	48 C	1122.7	1124.5	7.3	4700	2000		
	9400	HUAN	30 PBI	1134.9	1134.9	298.4	142.0	23.3		L
	2800	OTTA	21 GRF	1300.0E		300.0D	22.2			
	9400	HUAN	1 S	1333.6	1334.3	1.5	9.8	5.2		0
	2800	OTTA	2 S/F	1338.0	1342	8.0	8.0	4.0		
	9400	HUAN	20 GRF	1638.0	1643.1	45.8	11.4	5.8		0
	7000	SAOP	3 S	1641.7	1643.4	2.8	16.0			9L
	2800	OTTA	20 GRF	1804.0	1815	35.0	3.6			
	2800	OTTA	27A RF	1900.0		230.0	10.6	9.0		
	2800	OTTA	24 R	1900.0	1907	7.0	10.6	5.3		
	2800	OTTA	24P R	1907.0		183.0	10.6			
	2800	OTTA	1 S	1926.0	1928	3.0	4.2	2.1		
	2800	OTTA	21 GRF	2010.0	2045	45.0	6.8	3.4		
	2695	PENT	4 S/F	2014.0	2014.8	2.0	13.0	6.4		
	2800	OTTA	8 S	2029.4	2029.7	.4	26.0			
	2695	PENT	20 GRF	2116.0	2120	28.0	11.4	5.6		
	2695	PENT	3 S	2155.5	2156	1.0	211.0			
	2695	PENT	26 FAL	2210.0	2250	40.0	-10.6	-5.3		
	4995	MANI	47 GB	2329.8	2331.9	22.2	514.8	171.6		
	17000	NOBE		2329.8		3.3	137			L
	8800	MANI	47 GB	2329.8	2331.7	21.5	574.6	191.5		
	2695	MANI	4 S/F	2330.1	2332.0	18.9	267.9	89.3		
	1400	SYDN	3 S	2330.7	2332.0	4.9				
	35000	NAGO	5 S	2331.0	2332	3.0	29			
	1415	MANI	4 S/F	2331.3	2340.9	16.7	34.8	11.6		
	17000	NOBE	30 PBI	2333.1	2333.1	65.0	41			0
	35000	NAGO	29 PBI	2334.0	2334	86.0	13			
	606	MANI	4 S/F	2336.4	2341.5	8.6	27.6	9.2		
	500	HIRA	46 C	2339.5	2341.4	3.0	450	150		WR
	1400	SYDN	4 S/F	2339.7	2340.3	4.2				
	17000	NOBE	4 S/F	2339.7	2340.2	2.0	60			L
	700	SYDN	45 C	2340.0	2341.4	4.9				
09	202	IZMI	44 NS	0600.0E		360.0D	60			
	127	TORN	44 NS	0620.0E	1408.7	510.0D	300	43		V1, INCOMPLETE
	113	POTS	43 NS	0700.0	1245	453.0D	70			
	260	ONDR	44 NS	0810.0E		346.0D	104	8		
	536	ONDR	44 NS	0810.0E		346.0D	39			
	200	HIRA	44 NS	2105.0E	0600	600.0D	240	120		ML
	100	HIRA	44 NS	2105.0E	0600	600.0D	700	210		
	606	MANI	8 S	0219.8	0223.9	5.6	141.5	47.1		SPIKE
	700	SYDN	45 C	0223.0	0223.9	1.7				
	4995	MANI	3 S	0223.1	0224.0	6.7	18.6	6.2		
	1415	MANI	1 S	0223.8	0224.0	1.9	3.6	1.2		
	2695	MANI	3 S	0223.8	0224.0	1.3	12.6	4.2		
	5730	IRKU		0242.0	0250.0		18			L
	5730	IRKU		0242.0	0246.6		16			L
	5730	IRKU		0242.0	0248.5		27			L
	5730	IRKU	45 C	0242.0	0243.4	11.0	16	11		L
	8800	MANI	4 S/F	0242.1	0248.6	9.1	34.7	11.6		
	2695	MANI	4 S/F	0242.1	0248.6	9.1	37.8	12.6		
	4995	MANI	4 S/F	0242.1	0248.6	9.1	44.3	14.7		

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DAY OF MONTH	FREQUENCY	STATION	TYPE	STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1}		INT	POLARIZATION OR REMARKS
				UT	UT	MINUTES	PEAK	MEAN		
09	17000	NOBE	20 GRF	0242.6	0248.6	15.0	9			O
	1415	MANI	1 S	0242.7	0248.6	8.5	3.6	1.2		
	5730	IRKU		0302.0	0305.3		50 D			R
	5730	IRKU		0302.0	0306.5		50 D			L
	5730	IRKU		0302.0	0304.0		48 D			L
	5730	IRKU	45 C	0302.0	0302.5	14.0	8			L
	8800	MANI	47 GB	0302.0	0304.9	24.3	4579.2	1526.4		
	4995	MANI	47 GB	0302.0	0304.8	24.3	1869.6	623.2		
	2695	MANI	47 GB	0302.0	0304.9	23.8	1512.6	504.2		
	700	SYDN	45 C	0302.2	0305.8U	28.3				
	17000	NOBE	47 GB	0302.9	0304.9	4.5	6061			L
	35000	NAGO	47 GB	0303.0	0305	4.0	2610			
	200	HIRA	48 C	0303.0	0305.0	8.0	29000	2730		O
	1400	SYDN	3 S	0303.3	0306.0U	21.1				
	606	MANI	47 GB	0303.3	0305.5	25.7	1958.8	652.9		SPIKE
	1415	MANI	47 GB	0303.3	0305.1	24.5	939.9	313.3		
	500	HIRA	48 C	0303.4	0305.6	38.0	28000	1500		ML,MR
	100	HIRA	48 C	0303.4	0305.0	14.0	40000 D	3540 D		
	35000	NAGO	29 PBI	0307.0	0307	8.0	22			
	17000	NOBE	29 PBI	0307.4	0307.4	11.0	61			O
	950	GORK	21 GRF	0545.0		29.3				
	9100	GORK	23 GRF	0545.3		80.0U				
	17000	NOBE	20 GRF	0546.1	0547.0	10.0	28			L
	500	HIRA	46 C	0546.3	0546.5	1.0	2800	700		ML
	9100	GORK	1 S	0546.5	0547.2	1.5	38	20		
	606	MANI	4 S/F	0546.5	0547.4	9.0	30.5	10.1		
	8800	MANI	3 S	0546.5	0547.4	12.0	34.7	11.5		
	100	HIRA	7 C	0546.6	0547.2	.9	10000	2600		
	950	GORK	3 S	0546.7	0547.5	2.5	17			
	650	GORK	23 GRF	0546.8		33.1				
	2950	GORK	1 S	0546.8	0547.2	1.9	18	9		
	3100	CRIM	3 S	0547.0	0547.5	2.0	24	7		
	5730	IRKU	1 S	0547.0	0547.4	3.0	18	6		L
	1415	MANI	3 S	0547.0	0547.7	11.7	14.2	4.7		
	4995	MANI	3 S	0547.0	0547.5	2.0	18.6	6.2		
	2695	MANI	3 S	0547.0	0547.7	2.0	21.0	7.0		
	5730	IRKU	21 GRF	0552.0	0557.7	7.0	10	4		L
	17000	NOBE	7 C	0557.0	0557.3	4.0	43			L
	9100	GORK	2 SF	0557.1	0557.4	.9	32	16		
	606	MANI	4 S/F	0601.5	0603.4	6.9	250.2	83.4		
	9100	GORK	4 SF	0601.9	0603.6	6.3	1120			
	5730	IRKU		0602.0	0603.6		68			R
	35000	NAGO	5 S	0602.0	0604	5.0	150			
	5730	IRKU	45 C	0602.0	0602.9	7.0	41			R
	5730	IRKU		0602.0	0605.3		84			R
	5730	IRKU		0602.0	0604.0		336			L
	3100	CRIM	3 S	0602.0	0603.5	8.0	225	70		
	202	IZMI	47 GB	0602.0	0604.0	6.5	1800	850		
	5730	IRKU		0602.0	0603.8		68 D			R
	200	HIRA	45 C	0602.0	0604.0	6.6	7500	300		ML
	4995	MANI	4 S/F	0602.0	0603.9	6.4	454.4	151.5		
	8800	MANI	47 GB	0602.0	0604.2	11.0	1113.9	371.3		
	17000	NOBE	47 GB	0602.0	0603.5	4.0	2300			L
	950	GORK	4 SF	0602.1	0604.0	3.9	120			
	100	HIRA		0602.1	0602.2		1500			
	100	HIRA	7 C	0602.1	0603.8	3.0	18000	2450		
	2950	GORK	3 S	0602.2	0603.6	5.1	360	180		
	500	HIRA	46 C	0602.2	0603.1	4.0	6500	1000		ML
	2695	MANI	4 S/F	0602.3	0603.8	7.0	287.7	95.9		
	1415	MANI	4 S/F	0602.3	0603.8	8.7	169.1	56.4		
	650	GORK	46 C	0602.5	0603.2U	3.5	85 D			
	650	GORK		0602.5	0605.1		77			
	17000	NOBE	29 PBI	06C5.0	0606.6	8.0	38			O
	35000	NAGO	29 PBI	0607.0	0607	6.0	27			
	9100	GORK	1 S	0630.6	0630.8	.8	18	9		
	3100	CRIM	3 S	0638.0	0638.5	1.0	24	7		
	5730	IRKU	2 S	0638.3	0638.4	3.0	15	3		R
	2950	GORK	1 S	0638.3	0638.4	.9	21	10		
	9100	GORK	1 S	0638.3	0638.5	.8	26	13		
	4995	MANI	3 S	0638.5	0638.6	.9	25.6	8.5		
	2695	MANI	3 S	0638.5	0638.7	.8	14.7	4.9		
	8800	MANI	3 S	0638.5	0638.7	.8	31.2	10.4		
	950	GORK	1 S	0709.5	0709.9	1.1	2.5			
	202	IZMI	2 S/F	0737.0	0737.5	.7	760	500		
	3000	POTS	3 S	0924.0	0924.7	2.5	42			
	9500	POTS	3 S	0924.0	0924.4	2.0	12			
	3100	CRIM	3 S	0924.0	0924.5	3.0	45	11		
	2650	DWIN	1 S	0924.0	0925	2.0	40	30		
	650	GORK	1 S	0924.3	0924.5	1.3	6	3		
	2950	GORK	3 S	0924.3	0924.8	2.2	46	23		
	9100	GORK	1 S	0924.4	0926.0	2.3	13	5		
	1470	POTS	1 S	0924.5	0924.8	1.0	5.2			
	9400	HUAN	20 GRF	1219.5	1230.3	36.1	8.1	4.4		O
	9400	HUAN	21 GRF	1306.0	1350.3	77.0	9.7	6.8		L
	2800	OTTA	23 GRF	1310.0	1355	115.0	6.4	3.6		

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DAY OF MONTH	FREQUENCY	STATION	TYPE		STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1}		INT	POLARIZATION OR REMARKS
					UT	UT	MINUTES	PEAK	MEAN		
09	9400	HUAN	1	S	1341.8	1343.1	2.5	6.4	6.1		O
	2800	OTTA	4	S/F	1352.2	1352.8	1.5	19.0	4.8		
	9400	HUAN	1	S	1352.7	1353.3	1.8	4.8	4.5		O
	113	POTS	4	S/F	1407.9	1408.0	.6	850	85		
	930	BORD	41	F	1441.0	1441.5	.6	68	2		
	2800	OTTA	23	GRF	1510.0	1645	190.0	8.0	4.0		
	9400	HUAN	23	GRF	1530.1	1610.2	73.5	17.8	3.1		L
	930	BORD	41	F	1541.7	1542.7	1.3	27	2		
	9400	HUAN	3	S	1618.0	1618.6	1.2	46.8	16.5		L
	2800	OTTA	8	S	1752.3	1752.5	.5	4.8	2.4		
	9400	HUAN	21	GRF	1910.4	1929.4	53.6	21.0	11.8		L
	7000	SAOP	45	C	1922.6	1933.0	25.8	41.0			O
	2800	OTTA	46F	C	1923.3	1927	6.7	22.0	11.0		
	9400	HUAN	2	S/F	1926.0	1927.8	2.5	22.6	12.7		L
	2800	OTTA	29	PBI	1930.0	1930	7.0	8.2	4.1		
	9400	HUAN	4	S/F	1931.8	1932.8	2.3	27.4	10.3		O
	2800	OTTA	240	R	1950.0	1954	4.0	7.4			
	9400	HUAN	20	GRF	2027.5	2037.9	16.8	19.4	8.1		O
	2800	OTTA	240	R	2030.0	2050	20.0	12.0	6.0		
	9400	HUAN	4	S/F	2113.2	2114.4	2.4	22.6	15.6		O
	2695	PENT	21	GRF	2122.0	2159	80.0D	20.0			
	2695	PENT	3	S	2124.2	2125	3.0	28.0	9.4		
	9400	HUAN	21	GRF	2144.3	2155.5	29.8	33.9	17.5		L
	9400	HUAN	1	S	2156.8	2157.9	1.7	12.9	7.4		L
	9400	HUAN	45	C	2200.3	2205.0	7.1	209.8	96.8		L
	2695	PENT	45	C	2200.5	2201.5	8.0	46.8	21.0		
	2930	VORO	45	C	2325.0	2329	30.0	161 D			
10	202	IZMI	44	NS	0600.0E		360.0D	80			
	127	TORN	44	NS	0620.0E	0632 U	520.0D	2000	52		V1,INCOMPLETE
	113	POTS	44	NS	0633.0E	0706	461.0D	385			
	536	ONDR	44	NS	0800.0E		360.0D	65	5		
	260	ONDR	44	NS	0800.0E		360.0D	135	12		
	100	HIRA	44	NS	2108.0E	0215	600.0D	50	27		
	200	HIRA	44	NS	2108.0E	2325	600.0D	140	55		ML
	100	HIRA	44	NS	2109.0E	0600	600.0D	120	25		
	200	HIRA	44	NS	2109.0E	0517	600.0D	140	50		WR
	100	HIRA	45	C	0237.8	0238.2	.9	10000	5000		
	200	HIRA	45	C	0238.0	0238.4	.6	1400	790		O
	500	HIRA	22	GRF	0239.0	0304	114.0	30	16		SR
	606	MANI	4	S/F	0410.1	0411.1	5.4	21.7	7.2		
	650	GORK	21	GRF	0634.8	0652.4	34.6	25			
	202	IZMI	48	C	0636.5	0638.5	6.0	4300	2000		
	950	GORK	21	GRF	0638.0	0654.0	40.0	16			
	9100	GORK	47	GB	0640.4	0642.2	6.7	2600			
	2950	GORK	46	C	0640.5	0642.1	5.8	490			
	2950	GORK			0640.5	0645.6		195			
	17000	NOBE	47	GB	0640.7	0642.0	4.4	11770			L
	950	GORK			0641.0	0643.7		203			
	3100	CRIM			0641.0	0703.0		30 D			
	650	GORK	46	C	0641.0	0641.6	6.8	310			
	950	GORK	45	C	0641.0	0642.6	12.0	22.1			
	650	GORK			0641.0	0643.5		330			
	3100	CRIM	45	C	0641.0	0642.0	122.0	30 D			
	500	HIRA	48	C	0641.0	0643.5	3.0	48000	5000		WL,MR
	200	HIRA	48	C	0641.0	0643.5	7.0	45000	750		O
	4995	MANI	47	GB	0641.0	0642.7	33.3	2918.2	972.7		
	2695	MANI	47	GB	0641.0	0642.8	33.5	1848.4	616.1		
	1415	MANI	47	GB	0641.3	0642.8	29.9	680.6	226.9		
	8880	MANI	47	GB	0641.5	0642.7	32.8	2741.1	913.7		
	606	MANI	47	GB	0641.7	0644.1	33.6	1925.8	641.9		SPIKE
	2950	GORK	30	PBI	0646.3	0646.4	28.0	26			
	9100	GORK	30	PBI	0647.1	0647.7	30.5U	6			
	650	GORK	4	SF	0701.8	0703.8	4.7	46			
	950	GORK	4	SF	0701.8	0703.7	7.0	12			
	2950	GORK	2	SF	0701.8	0703.2	5.9	20			
	9100	GORK	2	SF	0702.6	0705.7	5.2	14	6		
	9100	GORK	1	S	0831.9	0832.2	1.0	8	4		
	8400	BERN	3		0906.9	0907.5	6.0	56.0			
	10400	BERN	3		0906.9	0907.5	6.0	56.0			
	10715	DWIN	3	S	0907.0	0908	3.0	70	40		
	9100	GORK	3	S	0907.2	0907.5	2.3	50	25		
	9500	POTS	3	S	0907.2	0907.5	3.8	63			
	202	IZMI	4	S/F	1021.5	1022.0	1.0	800	600		
	202	IZMI	4	S/F	1034.0	1034.5	1.0	700	500		
	9500	POTS	8	S	1105.3	1105.3	.4	39			
	10400	BERN	46		1157.4	1219.0	40.0	182.0			
	8400	BERN	46		1157.4	1219.0	40.0	140.0			
	7000	SAOP	45	C	1158.0						EQUIP PROBLEMS
	3000	POTS	42	SER	1159.0	1219.2	29.0	119			
	9500	POTS	42	SER	1159.0	1218.9	36.0	225			
	9400	HUAN	21	GRF	1159.2	1221.6	39.5	50.5	14.5		L
	9400	HUAN	4	S/F	1200.5	1202.6	5.2	47.2	25.8		R
	113	POTS	42	SER	1201.0	1209.7	9.0	840	1		
	9400	HUAN	45	C	1214.1	1218.9	6.6	291.4	88.1		L

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				UT	UT	MINUTES	PEAK	MEAN		
10	10715	DWIN	45 C	1216.0	1219	10.0	140	80		
	930	BORD	45 C	1216.6	1218.7	4.4	1184	20		
	2650	DWIN	45 C	1217.0	1219	8.0	100	50		
	1470	POTS	3 S	1217.0	1219.2	5.0	43			
	33	UPIC	4 S/F	1218.3	1219.1	2.7				
	29	UPIC	4 S/F	1218.4	1218.9	2.8				
	2800	OTTA	24OAR	1250.0	1330	40.0	41.0	20.5		
	3000	POTS	25 R	1302.0	1315.4	62.0	42			
	9400	HUAN	20 GRF	1302.1	1328.0	95.4	34.2	16.2		0
	8400	BERN	20	1308.1	1323.1	60.0	35.0			
	10400	BERN	20	1308.1	1340.0	52.0	28.0			
	9500	POTS	20 GRF	1310.0	1325.0	54.0	28			
	1470	POTS	25 R	1311.5	1315.9	53.0	66			
	930	BORD	45 C	1314.0	1314.8	7.0	150	20		
	29	UPIC	4 S/F	1314.5	1315.1	2.7				
	33	UPIC	4 S/F	1314.7	1315.5	2.3				
	2800	OTTA	4 S/F	1314.7	1315.2	5.0	24.0	12.0		
	2800	OTTA	22 GRF	1428.0	1438	13.0	5.0	2.6		
	2800	OTTA	21 GRF	1510.0	1525	30.0	5.6	3.2		
	9400	HUAN	21 GRF	1520.8	1528.3	16.5	14.6	8.0		L
	930	BORD	41 F	1521.0	1521.2	1.6	35	2		
	7000	SAOP	45 C	1521.0	1526.8	3.4	79.0			11R
	930	BORD	45 C	1526.0	1527.3	4.0	34	4		
	2800	OTTA	3 S	1526.0	1526.5	4.0	37.4	10.0		
	9400	HUAN	4 S/F	1526.2	1526.7	1.9	50.5	25.6		L
	2800	OTTA	20 GRF	1548.0	1551	20.0	8.4	2.8		
	9400	HUAN	21 GRF	1600.3	1640.0	188.3	22.8	12.4		L
	2800	OTTA	21 GRF	1620.0	1640	90.0	7.0	4.0		
	9400	HUAN	2 S/F	1620.5	1621.9	3.9	19.5	10.9		0
	2800	OTTA	4 S/F	1621.0	1621.6	4.0	26.0	6.6		
	9400	HUAN	2 S/F	1714.7	1715.4	1.7	16.3	6.8		0
	2800	OTTA	26A FAL	1805.0	1910	65.0	-13.8	-6.9		
	7000	SAOP	4 S/F	1826.6	1831.6	4.4	238.0			3R
	9400	HUAN	3 S	1830.0	1831.9	7.6	107.4	34.2		L
	2695	BOUL	3 S	1831.0E	1831.5	1.5D	75	25		
	2800	OTTA	3 S	1831.0	1831.7	5.0	132.0	36.0		
	2800	OTTA	8 S	2025.1	2025.4	.6	10.4	5.2		
	2800	OTTA	21 GRF	2040.0	2100	35.0	4.2	2.1		
	2800	OTTA	1 S	2055.9	2056.1	1.0	5.2	2.6		
	2695	PENT	20 GRF	2128.0	2134	12.0	9.4	3.6		
	2695	PENT	20 GRF	2142.0	2147	18.0	9.4	4.6		
	100	HIRA	46 C	2151.2	2151.8	1.8	1500 U	380 U		
	606	MANI	8 S	2327.5	2327.7	3.8	162.0	54.0		SPIKE
	2695	MANI	3 S	2327.5	2328.3	2.5	42.7	14.2		
	8800	MANI	3 S	2327.5	2328.1	1.5	30.3	10.1		
	4995	MANI	3 S	2327.5	2328.2	2.5	30.6	10.2		
	1415	MANI	4 S	2327.5	2328.3	5.0	49.1	16.4		
	500	HIRA	4 S/F	2327.6	2328.0	1.0	10000	3500		
	17000	NOBE	8 S	2327.8	2328.2	.4	31			L
11	202	IZMI	44 NS	0600.0E		360.0D	55			
	113	POTS	44 NS	0640.0E	1212	455.0D	20			
	127	TORN	43 NS	0640.0	1129 U	320.0D	870	19		V1,INCOMPLETE
	536	ONDR	44 NS	0753.0E		377.0D	104	6		
	260	ONDR	44 NS	0753.0E		377.0D	172	15		
	35000	NAGO	20 GRF	0130.0	0230	140.0	15			
	9100	GORK	2 SF	0515.1	0515.7	2.7	12	5		
	650	GORK	3 S	0520.8	0521.3	1.2	21	10		
	5730	IRKU	20 GRF	0528.0	0533.5	9.0	16	8		L
	9100	GORK	21 GRF	0530.5		360.0				
	9100	GORK	2 SF	0531.7	0533.3	2.5	10.5			
	650	GORK	2 SF	0602.2E	0604.0	6.0	8.5	4		
	2950	GORK	21 GRF	0602.8	0607.1	10.7	28			
	3100	CRIM	3 S	0603.0	0605.0	7.0	38 D			
	950	GORK	4 SF	0604.0	0606.0	4.3	23			
	2950	GORK	3 S	0604.2	0606.0	2.8	62			
	5730	IRKU	22 GRF	0604.3	0606.0	8.0	31	10		L
	9100	GORK	1 S	0604.8	0605.9	2.0	12	6		
	650	GORK	20 GRF	0648.0	0708.3	25.8	4			
	3100	CRIM	1 S	0648.0	0649.0	3.0	15	5		
	9100	GORK	2 SF	0648.4	0648.8	1.0	10.5			
	3100	CRIM	1 S	0745.5	0747.0	5.0	8	3		
	930	BORD	8 S	0754.7	0754.7	1.0	18	1		
	930	BORD	45 C	0820.8	0821.3	.5	29	4		
	3100	CRIM	3 S	0844.0	0845.5	2.0	40	10		
	930	BORD	41 F	0844.0	0844.3	2.0	43	3		
	2650	DWIN	1 S	0844.0	0844	2.0	45	20		
	2950	GORK	2 SF	0844.1	0844.3	1.7	63			
	2950	GORK	41 F	0857.0	0857.8	4.8	9			
	650	GORK	40 F	0857.0	0900.1	19.6	11.5			
	650	GORK		0857.0	0915.2		9.5			
	9500	POTS	42 SER	0857.0	0900.4	4.0	35			
	2950	GORK		0857.0	0905.0		36			
	9100	GORK	1 S	0857.1	0857.7	1.5	11	5.5		
	1470	POTS	42 SER	0857.5	0857.7	3.5	17			

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DAY OF MONTH	FREQUENCY	STATION	TYPE		STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY MEAN	INT	POLARIZATION OR REMARKS
11	3100	CRIM	1	S	0858.0	0858.5	1.0	12	4		
	3100	CRIM	3	S	0859.5	0900.5	3.0	37	10		
	9100	GORK	4	SF	0859.6	0900.5	1.2	44			
	10400	BERN	4		0859.6	0900.7	2.0	15.0			OPR
	8400	BERN	4		0859.6	0900.7	2.0	40.0			OPR
	950	GORK	4	SF	0900.0	0900.3	.7	17 D			
	2650	DWIN	1	S	0900.0	0900	1.0	35	20		
	3000	POTS	3	S	0900.0	0900.5	1.0	24			
	930	BORD	41	F	0900.2	0900.2	.5	125	3		
	950	GORK	4	SF	0940.5	0941.6	2.0	27 D			
	930	BORD	41	F	0940.6	0941.6	2.0	151	10		
	3000	POTS	3	S	0940.6	0942.0	1.6	8			
	8400	BERN	1		0940.6	0941.8	2.0	25.0			OPR
	10400	BERN	1		0940.6	0941.8	2.0	6.0			OPR
	1470	POTS	1	S	0941.0	0942.0	2.0	3.2			
	9500	POTS	3	S	0941.0	0941.6	2.0	16			
	3100	CRIM	1	S	0941.0	0941.5	2.0	12	4		
	9100	GORK	1	S	0941.1	0941.5	1.2	19	9.5		
	2950	GORK	1	S	0941.3	0941.8	1.4	9			
	650	GORK	4	SF	0958.1	0959.0	2.7	24			
	950	GORK	2	SF	0958.4	0959.0	1.1	8.5			
	930	BORD	41	F	0958.4	0959.1	1.0	17	3		
	3100	CRIM	1	S	0958.5	0959.5	1.0	17	5		
	1470	POTS	4	S/F	0958.5	0959.1	1.0	25			
	3000	POTS	8	S	0958.8	0959.0	.7	12			
	2650	DWIN	3	S	1048.0	1049	4.0	120	50		
	7000	SAOP	45	C	1048.0	1048.9	8.2	39.0			41R
	650	GORK	3	S	1048.6	1048.8	.5	66	30		
	930	BORD	45	C	1048.6	1048.7	2.4	2275	15		
	1470	POTS	3	S	1048.6	1049.1	4.4	52			
	950	GORK	3	S	1048.6	1048.9	1.5	30 D			
	2950	GORK	3	S	1048.7	1048.9	.9	113			
	10400	BERN	1		1048.7	1049.0	1.5	12.0			OPR
	8400	BERN	1		1048.7	1049.0	1.5	45.0			OPR
	9500	POTS	1	S	1048.8	1048.9	1.2	10			
	9100	GORK	1	S	1048.8	1048.9	.5	21	10.5		
	3000	POTS	3	S	1048.9	1049.0	3.1	102			
	3100	CRIM	3	S	1049.0	1049.5	5.0	52	15		
	2950	GORK	29	PBI	1049.6	1049.6		18			
	650	GORK	3	S	1055.2	1055.4	.4	15			
	930	BORD	41	F	1106.6	1106.8	1.4	43	7		
	1470	POTS	4	S/F	1106.8	1107.0	1.2	7.5			
	930	BORD	8	S	1116.7	1116.7	.2	43	2		
	9100	GORK	1	S	1121.3	1121.5	.5	10	5		
	930	BORD	41	F	1122.6	1122.6	.5	16	2		
	930	BORD	41	F	1134.8	1135.2	1.0	115	5		
	930	BORD	8	S	1142.7	1142.7	.2	15	2		
	29	UPIC	2	S/F	1142.8	1143.1	.6				
	33	UPIC	2	S/F	1143.0	1143.1	.5				
	29	UPIC	4	S/F	1144.5	1144.6	.7				
	33	UPIC	4	S/F	1144.5	1144.5	.5				
	930	BORD	41	F	1202.0	1204.8	3.0	26	2		
	930	BORD	42	SER	1246.0	1249	14.0	151	4		
	7000	SAOP	45	C	1253.0	1255.1	4.4	35.0			25R
	1470	POTS	3	S	1254.5	1255.1	1.5	8.9			
	2800	OTTA	3	S	1254.5	1255	3.5	17.8	6.0		
	3000	POTS	3	S	1254.7	1255.0	1.3	12			
	9500	POTS	29	PBI	1254.8	1255.0	4.2	14			
	8400	BERN	8		1254.8	1255.0	3.0	30.0			OPR
	10400	BERN	8		1254.8	1255.0	3.0	30.0			OPR
	2800	OTTA	20	GRF	1301.0	1307	12.0	10.0	5.0		
	930	BORD	41	F	1309.0	1311.5	3.0	58	2		
	113	POTS	4	S/F	1311.1	1311.5	1.3	420	35		
	1470	POTS	42	SER	1322.5	1325.3	5.5	10			
	3000	POTS	3	S	1325.0	1325.4	1.0	8			
	2800	OTTA	8	S	1325.0	1325.3	.6	12.8	6.4		
	930	BORD	45	C	1325.2	1325.3	.4	1368	4		
	113	POTS	4	S/F	1329.3	1330.0	1.2	400	25		
	2800	OTTA	20	GRF	1330.0	1420	140.0	10.4	5.2		
	930	BORD	41	F	1458.4	1458.5	.4	62	2		
	930	BORD	41	F	1516.7	1516.8	.5	35	3		
	930	BORD	41	F	1520.3	1520.6	2.0	40	4		
	930	BORD	41	F	1533.0	1533.5	.8	1600	4		
	2800	OTTA	21	GRF	1600.0	1700	90.0	7.0	3.4		
	2800	OTTA	4	S/F	1609.0	1612	7.0	19.0	9.5		
	7000	SAOP	45	C	1610.0	1616.5		16.0			0
	9400	HUAN	23	GRF	1619.3	1655.6	101.9	18.9	7.2		R
	2800	OTTA	1	S	1649.7	1650.1	4.0	5.0	2.4		
	9400	HUAN	2	S/F	1757.4	1758.0	3.7	15.5	6.6		0
	7000	SAOP	45	C	1757.6	1758.2	2.0	25.0			11R
	2800	OTTA	3	S	1758.0	1758.5	2.5	11.2	4.0		
	2800	OTTA	260	FAL	1805.0	1850	40.0	11.0	5.5		
	2800	OTTA	8	S	1935.2	1935.3	.8	5.0	2.5		
	2800	OTTA	3	S	2040.0	2041.3	3.0	12.2	3.4		
	9400	HUAN	22	GRF	2127.8	2136.8	18.9	24.1	12.8		0

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DAY OF MONTH	FREQUENCY	STATION	TYPE		STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1}		INT	POLARIZATION OR REMARKS
					UT	UT	MINUTES	PEAK	MEAN		
11	2695	PENT	3	S	2131.0	2132	4.0	13.8	3.2		
	2695	PENT	1	S	2136.5	2136.7	2.0	5.0	2.4		
	2695	PENT	1	S	2139.4	2140	1.5	4.0	3.0		
	9400	HUAN	3	S	2201.2	2201.8	2.8	22.3	10.8		L
	2695	PENT	3	S	2201.6	2202	1.5	33.0	11.0		
	2695	PENT	8	S	2209.4	2209.6	.5	14.2			
	17000	NOBE	20	GRF	2240.5	2303.4	45.0	15			O
	35000	NAGO	20	GRF	2315.0	2317	45.0	18			
	2930	VORO	3	S	2325.0	2328	10.0	56			
12	202	IZMI	44	NS	0600.0E		360.0D	60			
	113	POTS	44	NS	0633.0E	0659	97.0D	70			
	536	ONDR	44	NS	0754.0E		362.0D	65	7		
	260	ONDR	44	NS	0754.0E		362.0D	209 D	18		
	200	HIRA	44	NS	2110.0E	0206	600.0D	20	10		WL
	17000	NOBE	23	GRF	0102.1	0119.0	48.0	15			O
	2930	VORO	3	S	0125.0	0128	10.0	113			
	8800	MANI	4	S/F	0127.0	0128.6	5.0	461.0	153.7		
	4995	MANI	4	S/F	0127.0	0128.4	7.0	219.6	73.2		
	100	HIRA	48	C	0127.3	0128.5	4.0	35000	5100		
	500	HIRA	46	C	0127.3	0127.7	5.5	600	80		WL
	606	MANI	4	S/F	0127.3	0128.1	6.7	168.5	56.2		
	2695	MANI	4	S/F	0127.3	0128.6	5.2	241.7	80.6		
	1415	MANI	4	S/F	0127.3	0128.5	6.7	336.6	112.2		
	200	HIRA	42	SER	0127.6	0128.2	12.0	5000			MR
	1400	SYDN	4	S/F	0127.6	0128.4	4.8				
	17000	NOBE	4	S/F	0127.6	0128.1	3.4	192			R
	700	SYDN	3	S	0127.6	0128.7	3.9				
	35000	NAGO	5	S	0128.0	0129	6.0	37			
	5730	IRKU			0136.0	0139.0		7			R
	5730	IRKU			0136.0	0137.4		24			R
	5730	IRKU			0136.0	0138.1		17			R
	5730	IRKU			0136.0	0137.1		32			L
	5730	IRKU			0136.0	0137.8		20			L
	5730	IRKU			0136.0	0137.6		21			L
	5730	IRKU			0136.0	0137.3		29			L
	5730	IRKU	45	C	0136.0	0136.8	7.0	10			R
	202	IZMI	8	S	0715.3	0915.3	.7	2400	1800		
	202	IZMI	4	S/F	0751.7	0752.0	1.5	750	450		
	9100	GORK	1	S	0807.5	0807.9	1.3	5.5	2.5		
	930	BORD	41	F	0807.6	0807.8	.7	60	2		
	9100	GORK	1	S	0833.0	0833.3	.6	4	2		
	9500	POTS	1	S	0916.5	0917.5	2.5	7.3			
	1470	POTS	3	S	0916.5	0917.9	2.5	7.5			
	113	POTS	8	S	0916.6	0917.5	.9	12000	4000		
	950	GORK	2	SF	0917.0	0917.5	2.2	8.5			
	9100	GORK	2	SF	0917.1	0917.4	4.9	6.5	3		
	650	GORK	22	GRF	0917.2		178.0E		7		
	9100	GORK	1	S	0927.1	0927.4	.7	5.5	2.5		
	930	BORD	41	F	1041.7	1043.3	2.3	130	3		
	3100	CRIM	1	S	1042.0	1043.0	5.0	20	7		
	9500	POTS	20	GRF	1052.0	1106	83.0	14			
	9100	GORK	20	GRF	1053.5	1128.8	62.0	14	6		
	1470	POTS	20	GRF	1102.0	1113	58.0	3.2			
	3000	POTS	20	GRF	1105.0	1106	68.0	7			
	930	BORD	8	S	1116.3	1116.3	.2	25	2		
	930	BORD	41	F	1333.2	1333.4	.8	19	2		
	7000	SAOP	3	S	1353.4	1354.2		13.0			26R
	2800	OTTA	1	S	1400.0	1401	2.0	3.6	1.6		
	7000	SAOP	3	S	1414.0	1414.2	33.0	30.0			O
	2800	OTTA	8	S	1441.7	1441.9	.7	7.2	3.6		
	7000	SAOP	20	GRF	1659.0	1701.0		10.0			54R TWO BURSTS
	2800	OTTA	4	S/F	1936.0	1945	16.0	107.0	48.4		
	9400	HUAN	22	GRF	1940.1	1957.0	71.7	29.8	28.5		L
	2800	OTTA	29	PBI	1952.0	1952	115.0	28.4	7.2		
13	260	ONDR	44	NS	0755.0E		361.0D	172	6		
	536	ONDR	44	NS	0755.0E		361.0D	13			
	200	HIRA	45	C	0046.3	0046.5	1.0	460	250		WR
	100	HIRA	7	C	0046.4	0047.0	1.6	810	200		
	9100	GORK	1	S	0608.2	0608.7	1.6	9.3	5.5		
	2950	GORK	1	S	0608.2	0608.6	.8	7.4			
	950	GORK	1	S	0608.3	0608.8	1.1	6			
	650	GORK	1	S	0608.4	0609.0	1.2	3	1.5		
	9100	GORK	1	S	0704.0	0704.1	1.1	7.8	4		
	113	POTS	41	F	0747.0	0747.3	1.8	300	30		
	202	IZMI	45	C	0748.5	0749.5	1.5	1380	800		
	113	POTS	4	S/F	1008.3	1008.9	1.7	2500	250		
	228	HARS	45	C	1008.5	1008.8	1.0	400	110		
	202	IZMI	47	GB	1008.5	1009.0	.7	1900	1200		
	930	BORD	41	F	1016.7	1017.1	.5	15	2		
	3100	CRIM	1	S	1118.0	1122.5	10.0	4	1		
	7000	SAOP	41	F	1220.0						TWO BURSTS
	7000	SAOP	1	S	1220.0	1220.6		8.0			43L
	7000	SAOP	27	RF	1224.0			5.0			O

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DAY OF MONTH	FREQUENCY	STATION	TYPE		STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1}		INT	POLARIZATION OR REMARKS
					UT	UT	MINUTES	PEAK	MEAN		
13	127	TORN	45	C	1234.3	1236.2	4.3	12	3		
	7000	SAOP	21	GRF	1422.0						
	7000	SAOP	21	GRF	1422.0			10.0			0
	2800	OTTA	45	C	1510.0	1510.5	5.0	19.2	7.0		
	9400	HUAN	2	S/F	1510.1	1510.7	1.9	18.6	11.0		0
	7000	SAOP	45	C	1510.4E	1510.4	3.2	23.0			12L
	9400	HUAN	29	PBI	1512.2	1512.2	19.8	4.6	.8		0
	9400	HUAN	20	GRF	1538.5	1601.8	46.1	3.1	1.9		0
	2800	OTTA	8	S	1638.9	1638.9	.1	7.2			
	2800	OTTA	22	GRF	1720.0	1734	25.0	4.2	1.8		
	2800	OTTA	40	F	1814.0	1822.8	13.0	7.8			
	9400	HUAN	2	S/F	1820.6	1822.6	5.6	10.9	3.1		R
	7000	SAOP	45	C	1821.0	1822.7	3.2	13.0			16R
	9400	HUAN	21	GRF	1854.7	1908.4	26.4	6.2	2.3		R
	2800	OTTA	40	F	1903.0	1913.5	22.5	14.2			
	9400	HUAN	1	S	1903.0	1904.0	2.4	7.8	3.3		0
	2800	OTTA	21	GRF	1935.0	2000	41.0	3.6			
	7000	SAOP	3	S	1944.0	1944.9	5.4	18.0			16R
	9400	HUAN	2	S/F	1957.7	2001.3	5.1	14.0	6.8		R
	2695	PENT	20	GRF	2000.0	2002.5	15.0	10.4			
	2695	PENT	21	GRF	2018.0	2120	90.0	4.2	2.4		
	2800	OTTA	1	S	2037.3	2037.7	2.0	6.2	3.0		
	100	HIRA	7	C	2128.1	2128.6	1.2	950	160		
14	260	ONDR	44	NS	0743.0E		372.0D	195	5		
	536	ONDR	43	NS	0847.0		303.0	46			
	500	HIRA	41	F	0232.0	0232.6	3.0	200			WR
	100	HIRA	42	SER	0232.0	0237.8	13.0	290			
	1415	MANI	3	S	0439.6	0440.2	1.4	10.6	3.5		
	4995	MANI	3	S	0439.6	0440.1	.9	10.4	3.5		
	2695	MANI	3	S	0439.6	0440.1	.9	21.2	7.1		
	3100	CRIM	21	GRF	0736.0	0848.0	197.0	10	3		
	202	IZMI	41	F	0847.2	0849.8	2.6	265			
	113	POTS	8	S	0847.3	0847.5	.4	385	130		
	2950	GORK	1	S	0849.0	0849.3	1.0	3.7	1.8		
	10400	BERN	3		0930.2	0931.8	2.0	12.0			OPR
	8400	BERN	3		0930.2	0931.8	2.0	30.0			OPR
	930	BORD	45	C	0931.0	0931.8	2.0	31	4		
	1470	POTS	3	S	0931.2	0931.8	1.3	22			
	9100	GORK	1	S	0931.2	0932.4	1.9	15	7.5		
	9500	POTS	1	S	0931.5	0931.9	.7	8.4U			
	950	GORK	4	SF	0931.5	0932.1	1.5	17.5			
	3000	POTS	1	S	0931.5	0932.0	1.0	6			
	3100	CRIM	1	S	0931.5	0932.2	1.0	9	3		
	2950	GORK	1	S	0931.8	0932.4	1.3	5.5			
	650	GORK	3	S	0933.8	0934.0	.7	3.6	2.5		
	202	IZMI	8	S	0942.1	0942.2	.3	800	500		
	202	IZMI	8	S	0945.7	0945.7	.2	860	600		
	808	ONDR	3	S	1012.5	1013.2	1.5	40	10		
	3000	POTS	3	S	1112.2	1112.8	5.3	25			
	950	GORK	5	S	1112.4	1112.9	5.0	44			
	7000	SAOP	3	S	1112.4	1112.7	1.8	24.0			6R
	2950	GORK	3	S	1112.5	1112.7	2.4	23	10		
	1470	POTS	3	S	1112.5	1113.2	6.0	25			
	202	IZMI	47	GB	1112.5	1112.6	.7	1100	700		
	113	POTS	41	F	1112.5	1113.1	1.6	280	20		
	9500	POTS	3	S	1112.5	1112.7	2.5	14 U			
	650	GORK	4	SF	1112.5	1112.7	2.5	23.6	19		
	9100	GORK	1	S	1112.5	1112.7	.9	21	10		
	930	BORD	45	C	1112.6	1112.9	6.0	78	9		
	8400	BERN	3		1112.6	1112.8	2.5	30.0			OPR
	10400	BERN	3		1112.6	1112.8	2.5	12.0			OPR
	3100	CRIM	1	S	1113.0	1113.2	2.0	22	7		
	2650	DWIN	1	S	1113.0	1113	2.0	30	20		
	7000	SAOP	20	GRF	1214.0	1215.2	21.6	9.0			0
	228	HARS	45	C	1223.8	1224.3	1.0	160	30		
	228	HARS	45	C	1227.5	1227.5	1.5	170	25		
	930	BORD	41	F	1250.0	1250.3	1.2	139	2		
	2800	OTTA	21	GRF	1325.0	1400	75.0	5.8	3.8		
	7000	SAOP	45	C	1326.6	1331.7	43.0	31.0			24L
	3000	POTS	3	S	1330.0	1331.7	5.0	23			
	9500	POTS	3	S	1330.0	1331.4	5.0	14 U			
	2800	OTTA	3	S	1330.0	1331.8	4.5	14.2	6.8		
	8400	BERN	27		1330.0	1331.8	7.0	40.0			OPR
	10400	BERN	27		1330.0	1331.8	7.0	15.0			OPR
	9400	HUAN	4	S/F	1330.0	1331.8	3.1	21.6	12.2		L
	1470	POTS	1	S	1331.0	1331.5	2.0	3			
	9400	HUAN	29	PBI	1333.1	1333.1	36.1	10.0	4.8		L
	2800	OTTA	20	GRF	1443.0	1448	17.0	6.8	3.6		
	9400	HUAN	20	GRF	1452.1	1527.8	118.9	15.0	7.7		L
	2800	OTTA	20	GRF	1540.0	1610	60.0	3.4	1.7		
	9400	HUAN	28	PRE	1815.3	2022.8	127.5	11.6	5.9		L
	9400	HUAN	45	C	2022.8	2024.4	7.5	196.4	92.7		L
	2800	OTTA	4	S/F	2023.0	2025	22.0	107.0	41.0		
	2695	BOUL	3	S	2024.0E	2027	6.5D	81	27		

SOLAR RADIO EMISSION
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DAY OF MONTH	FREQUENCY	STATION	TYPE	STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1}		INT	POLARIZATION OR REMARKS
				UT	UT	MINUTES	PEAK	MEAN		
14	9400	HUAN	29 PBI	2030.3	2030.3	35.5	46.6	19.1		L
	2800	OTTA	29 PBI	2045.0	2045	65.0	13.2	6.0		
	4995	MANI	4 S/F	2226.4	2227.5	3.4	37.6	12.5		
	1415	MANI	3 S	2226.4	2227.3	2.8	14.6	4.9		
	2695	MANI	4 S/F	2226.4	2227.5	2.4	24.6	8.2		
	8800	MANI	4 S/F	2226.5	2227.8	2.3	71.7	23.9		
15	260	ONDR	44 NS	0900.0E		290.0D	29	2		
	700	SYDN	45 C	0026.0	0026.3	1.0				
	1400	SYDN	2 S/F	0026.2	0026.4	1.1				
	700	SYDN	8 S	0030.9	0031.1	.4				
	700	SYDN	45 C	0531.8	0532.6	1.2				
	1400	SYDN	45 C	0531.9	0532.6	1.8				
	606	MANI	2 S/F	0532.0	0533.0	1.6	2.2	1.0		
	4995	MANI	3 S	0532.3	0532.6	1.7	22.0	7.3		
	1415	MANI	4 S/F	0532.3	0533.0	1.7	45.9	15.3		
	2695	MANI	3 S	0532.3	0532.6	1.7	25.1	8.4		
	8800	MANI	2 S/F	0532.3	0532.6	1.7	11.1	3.7		
	650	GORK	40 F	0740.6	0741.4	2.4	5			
	930	BORD	41 F	0741.0	0742.4	2.0	22	3		
	950	GORK	4 SF	0741.2	0742.4	2.3	11			
	2950	GORK	3 S	0741.3	0742.6	1.5	19			
	9100	GORK	21 GRF	0741.3						
	10400	BERN	3	0741.3	0742.5	6.0	30.0			OPR
	9500	POTS	3 S	0742.0	0742.5	3.0	35			
	9100	GORK	1 S	0742.2	0742.6	1.0	34	17		
	3000	POTS	8 S	0742.5	0742.6	.5	15			
	1470	POTS	8 S	0742.5	0742.8	.5	5.5			
	2950	GORK	29 PBI	0742.8	0742.8	6.3	5.5			
	650	GORK	4 SF	0751.9	0753.2	2.9	29	4		
	950	GORK	2 SF	0752.0	0753.3	2.9	8.5			
	1415	MANI	2 S/F	0752.0	0753.8	2.5	8.1	2.7		
	606	MANI	4 S/F	0752.0	0753.4	2.5	51.8	17.3		
	2695	MANI	2 S/F	0752.7	0753.7	1.8	4.2	1.4		
	4995	MANI	2 S/F	0752.7	0753.8	1.8	6.6	2.2		
	2950	GORK	1 S	0752.8	0753.3	1.5	4.6	2.3		
	930	BORD	45 C	0753.0	0753.4	1.0	22	2		
	202	IZMI	47 GB	0811.7	0811.7	.5	1580	1000		
	10400	BERN	8	1004.0	1007.1	5.0	70.0			OPR
	9100	GORK	3 S	1006.9	1007.3	1.7	64	32		
	3100	CRIM	3 S	1007.0	1008.5	7.0	27	9		
	2650	DWIN	3 S	1007.0	1008	8.0	140	50		
	9500	POTS	29 PBI	1007.0	1007.2	7.0	46			
	3000	POTS	29 PBI	1007.0	1007.0	12.0	116			
	930	BORD	45 C	1007.0	1007.4	3.0	55	6		
	10715	DWIN	3 S	1007.0	1007	1.0	60	40		
	2950	GORK	3 S	1007.1	1007.3	9.1	60 E			
	930	BORD	41 F	1230.7	1231.2	.5	16	2		
	2800	OTTA	20 GRF	1353.0		97.0	7.2	3.6		
	2800	OTTA	8 S	1538.5	1538.5	.2	7.8			
	2800	OTTA	8 S	1547.0	1547.2	.3	4.2	2.0		
	2800	OTTA	22 GRF	1640.0	1652	200.0	18.2	7.0		
	9400	HUAN	20 GRF	1646.4	1702.6	65.1	11.3	7.1		O
	2800	OTTA	4 S/F	2021.2	2025	6.8	167.0	40.0		
	9400	HUAN	4 S/F	2021.4	2024.6	4.2	88.8	41.1		R
	2695	BOUL	4 SF	2022.0E	2025	5.0D	132	44		
	9400	HUAN	29 PBI	2025.6	2025.6	36.4	30.7	24.3		O
	2800	OTTA	30 PBI	2028.0	2028	35.0	14.4	7.0		
	2800	OTTA	45 C	2030.8	2031.7	5.0	9.4	8.0		
	2695	PENT	21 GRF	2115.0		95.0D	28.0			
	9400	HUAN	21 GRF	2132.5	2155.0	42.3	240.5	82.0		R
	2695	PENT	8 S	2138.4	2138.4	.1	31.0			
	100	HIRA	46 C	2139.0	2139.6	112.0	600	33		
	200	HIRA	46 C	2139.0	2144	22.0U	90	19		O
	100	HIRA		2139.0	2147.4		500			
	100	HIRA		2139.0	2231.0		380			
	2695	PENT	47 GB	2139.0	2151.8	31.0	920.0	281.0		
	9400	HUAN	45 C	2139.0	2151.2	15.5	393.8	210.0		R
	500	HIRA	46 C	2140.0	2152.3	28.0	350	50		
	1400	SYDN	2 S/F	2211.0	2211.1	.5				
	700	SYDN	2 S/F	2212.4	2212.6	.7				
	2695	PENT	4 S/F	2222.0	2225	4.0	12.6	5.0		
16	260	ONDR	44 NS	0810.0E		306.0D	172	21		
	127	TORN	43 NS	0955.0		240.0D		1.7		V1, INCOMPLETE
	202	IZMI	43 NS	1000.0		120.0	60			
	113	POTS	4 S/F	0701.0	0701.2	1.7	150	15		
	202	IZMI	4 S/F	0702.5	0703.0	1.3	70	40		
	2650	DWIN	45 C	0830.0	0830	2.0	130	30		
	930	BORD	41 F	0920.8	0920.9	.3	52	2		
	950	GORK	1 S	0944.1	0944.3	1.2	3.6			
	650	GORK	1 S	0944.2	0944.4	.7	5.1	3.5		
	3000	POTS	20 GRF	0950.0	1017.2	130.0	14			
	1470	POTS	20 GRF	0950.0	1003.5	160.0	10			
	9500	POTS	20 GRF	0955.0	1017.2	140.0	15			

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DAY OF MONTH	FREQUENCY	STATION	TYPE		STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1}		INT	POLARIZATION OR REMARKS
					UT	UT	MINUTES	PEAK	MEAN		
16	3100	CRIM	24	R	0956.0	1010.0		10			
	228	HARS	28	PRE	0957.0	0958.4	4.5	80	20		
	9100	GORK	22	GRF	0957.5	1104.7	64.0	25			
	2950	GORK	20	GRF	0959.7	1009.7	43.0	9.2	4.5		
	536	ONDR	46	C	1000.7	1003.5	5.5	58	33		
	930	BORD	41	F	1001.0	1003.1	5.0	17	4		
	950	GORK	4	SF	1001.1	1004.6	13.0	10			
	228	HARS	47	GB	1001.5	1003.5	9.0	150	40		
	650	GORK	4	SF	1007.0	1009.0	5.8	72	51		
	650	GORK	2	SF	1122.6	1122.8	.8	22.7	18		
	113	POTS	4	S/F	1312.6	1313.5	2.4	190	15		
	7000	SAOP	40	F	1413.0		260.0				
	2800	OTTA	20	GRF	1453.0	1454	35.0	3.6	1.8		
	2800	OTTA	260	FAL	1740.0	1830	50.0	-5.2	-2.6		
	2800	OTTA	1	S	1841.0	1841.4	1.0	2.4	1.2		
	2800	OTTA	4	S/F	1857.0	1857.2	1.0	32.0	16.0		
	2695	PENT	20	GRF	2015.0	2150	140.0D	13.0			
17	127	TORN	43	NS	0650.0		320.0D		17		V1,INCOMPLETE
	260	ONDR	44	NS	0815.0E		310.0D	192	25		
	200	HIRA	44	NS	2117.0E	0049	600.0D	30	10		WR
	100	HIRA			0214.0	0310		39			
	100	HIRA			0214.0	0240		34			
	200	HIRA	27	RF	0214.0	0242.2	90.0	1300	170		WR
	100	HIRA	46	C	0214.0	0302.2	72.0	70	6		
	500	HIRA	46	C	0222.8	0237.7	22.0	45	16		WR
	536	ONDR	2	S/F	0840.8	0840.8	1.5	18			
	930	BORD	41	F	0939.0	0939.5	1.0	22	2		
	950	GORK	1	S	1018.4	1018.8	1.2	2			
	650	GORK	1	S	1018.6	1019.0	1.2	28	2		
	10400	BERN	27		1132.0	1209.1	90.0	21.0			OPR
	9500	POTS	22	GRF	1133.0	1208.5	62.0	19			
	7000	SAOP	45	C	1133.0	1208.6	63.0	24.0			6R THREE BURSTS
	3000	POTS	20	GRF	1134.0	1153.3	61.0	17			
	9400	HUAN	20	GRF	1134.4	1208.8	148.2	36.4	11.8		0
	536	ONDR	41	F	1137.0	1221.7	108.0	58	19		
	234	POTS	45	C	1144.0	1226	152.0D	350			
	1470	POTS	21	GRF	1148.0	1152.5	42.0	11			
	930	BORD	46	C	1148.0	1205	21.0	1430	25		
	202	IZMI	48	C	1149.0	1152.0	12.5	200	75		
	29	UPIC	46	C	1149.2	1152.2	7.2				
	228	HARS	28	PRE	1149.5	1154.0	36.0U	200	40		
	33	UPIC	46	C	1149.5	1152.1	6.4				
	113	POTS	45	C	1150.0	1152	147.0D	245			
	1470	POTS	4	S/F	1203.5	1207.2	5.0	938			
	228	HARS	47	GB	1225.0	1229.0	150.0U	450	90 U		SUNSET
	127	TORN	27	RF	1226.0U		105.0D		90		INCOMPLETE
	234	POTS	8	S	1315.6	1315.7	.5	450	150		
	234	POTS	8	S	1331.8	1332.2	1.2	350	120		
	9400	HUAN	20	GRF	1421.7	1432.0	21.4	3.5	2.1		0
	2800	OTTA	240	R	1820.0	1850	30.0	4.6	2.3		
18	260	ONDR	44	NS	0800.0E		317.0D	27	3		
	200	HIRA	44	NS	2117.0E	2220	500.0D	20	5		WR
	2950	GORK	20	GRF	0658.6	0705.7	44.3	5.4	4.5		
	9100	GORK	20	GRF	0659.0	0709.1	21.7	14	7		
	202	IZMI	2	S/F	0733.0	0733.0	1.0	350	100		
	113	POTS	27	RF	0754.0	0830	113.0	28	8		
	202	IZMI	41	F	0850.0	0850.3	3.5	330			
	3000	POTS	20	GRF	1010.0	1016.8	20.0	12			
	9500	POTS	20	GRF	1010.0	1022	25.0U	6.4			
	2950	GORK	1	S	1014.0	1017.0	4.9	9.1	4.5		
	536	ONDR	2	S/F	1014.0	1015.7	2.0	21	2		
	1470	POTS	20	GRF	1014.0	1016.5	16.0	4.0			
	9100	GORK	2	SF	1014.2	1016.4	4.6	23	12		
	950	GORK	1	S	1018.8	1019.1	.7	3			
	9100	GORK	28	PRF	1057.9	1059.8	5.1	11	5		
	930	BORD	45	C	1102.0	1107.4	7.0	42	9		
	7000	SAOP	45	C	1103.0	1105.6	2.6	399.0			19L
	2650	DWIN	45	C	1104.0	1105	5.0	90	50		
	3000	POTS	4	S/F	1104.0	1105.6	4.5	102			
	10715	DWIN	45	C	1104.0	1105	5.0	135	60		
	808	ONDR	45	C	1104.0	1107.2	5.0	28	7.5		
	9500	POTS	29	PBI	1104.0	1105.5	36.0	249			
	536	ONDR	41	F	1104.0	1105	11.0	14	4		
	9400	HUAN	4	S/F	1104.4	1105.5	5.4	197.8	67.0		L
	650	GORK			1104.5	1107.9		6.5			
	650	GORK	46	C	1104.5	1105.4	5.5	16	4		
	950	GORK			1104.5	1107.9		21			
	1470	POTS	4	S/F	1104.5	1106.9	4.0	31			
	950	GORK	45	C	1104.5	1106.2	4.5	16.6			
	2950	GORK	4	SF	1104.6	1106.2	4.2	267			
	9100	GORK	3	S	1104.7	1106.1	8.5	290			
	33	UPIC	46	C	1105.1	1105.4	3.9				
	29	UPIC	46	C	1105.4	1107.2	3.3				

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DAY OF MONTH	FREQUENCY	STATION	TYPE	STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1}		INT	POLARIZATION OR REMARKS
				UT	UT	MINUTES	PEAK	MEAN		
18	113	POTS	27 RF	1113.0	1128	157.0	25	7		
	7000	SAOP	20 GRF	1213.8			10.0			14R
	2800	OTTA	1 S	1321.0	1322	2.0	7.2	3.5		
	228	HARS	45 C	1321.3	1321.6	1.0	340	60		
	2800	OTTA	1 S	1356.0	1356.1	2.0	4.8	2.4		
	2800	OTTA	21 GRF	1620.0	1637	55.0	6.0	3.0		
	2800	OTTA	1 S	1622.0	1622.5	1.0	2.8	1.8		
	7000	SAOP	20 GRF	1635.0	1641.7		11.0			14R TWO BURSTS
	2800	OTTA	22 GRF	1850.0	1940	70.0	4.6			
19	260	ONDR	44 NS	0800.0E		345.0D	24			
	200	HIRA	44 NS	2117.0E	0125	420.0D	25	10		WR
	202	IZMI	41 F	0711.0	0711.5	2.5	480			
	9100	GORK	1 S	0819.8	0821.8	2.5	8	4		
	2950	GORK	1 S	0819.9	0821.0	2.5	10.9	6		
	10400	BERN	8	0904.7	0905.1	2.0	30.0			OPR
	9100	GORK		1121.9		15.0D				
	1470	POTS	22 GRF	1125.0	1234.8	134.0	58			
	1470	POTS		1125.0	1301.7		58			
	9500	POTS	22 GRF	1142.0	1301.4	128.0	56			
	10715	DWIN	27 RF	1145.0	1205	100.0	40	20		
	7000	SAOP	20 GRF	1145.0			73.0			0 CAL 2 BURSTS
	2650	DWIN	27 RF	1145.0	1205	100.0	55	20		
	2950	GORK		1145.2	1155.8		58			
	2950	GORK	46 C	1145.2	1148.7	14.1	29			
	3000	POTS	22 GRF	1146.0	1304.0	107.0	64			
	8400	BERN	20	1146.5	1301.3	135.0	41.0			OPR
	10400	BERN	20	1146.5	1301.3	135.0	45.0			OPR
	3100	CRIM		1148.0	1230.5		32 U			
	3100	CRIM		1148.0	1236.0		81 U			
	3100	CRIM	7 C	1148.0	1151.0	72.0D	37 U			
	930	BORD	41 F	1152.7	1152.8	3.3	19	2		
	650	GORK	1 S	1157.0	1159.0	3.0	4.4	2.5		
	950	GORK	5 S	1157.2	1159.3	5.0	16			
	9400	HUAN	22 GRF	1159.0	1300.2	99.3	60.6	26.6		L
	930	BORD	40 F	1226.0	1303.7	54.0	89	30		
	2800	OTTA	3 S	1254.0E	1304	26.0	46.0			
	2800	OTTA	30 PBI	1320.0	1320	220.0	15.4	7.2		
	2800	OTTA	20 GRF	1527.0	1532	45.0	9.6	3.2		
	2800	OTTA	20 GRF	1829.0	1830	25.0	3.4	1.7		
	2800	OTTA	20 GRF	1905.0	1930	70.0	2.8	1.4		
	2695	PENT	20 GRF	2020.0	2100	90.0	4.8	3.0		
20	260	ONDR	44 NS	0800.0E		347.0D	32			
	200	HIRA	44 NS	2118.0E	0211	400.0D	10	5		WR
	2950	GORK	1 S	0608.2	0608.3	3.9	3.8	1.5		
	1415	MANI	1 S	0608.8	0609.5	2.2	4.6	1.5		
	2695	MANI	3 S	0608.8	0609.3	3.5	32.6	10.8		
	4995	MANI	3 S	0608.8	0609.3	3.5	29.8	9.9		
	930	BORD	41 F	1222.4	1222.8	.6	18	2		
	2800	OTTA	21 GRF	1440.0	1517	80.0	7.0	3.8		
	2800	OTTA	1 S	1506.0	1506.5	1.0	2.4	1.2		
	7000	SAOP	40 F	1512.0		15.0				
	2800	OTTA	20 GRF	1700.0	1805	115.0	8.0	3.8		
	7000	SAOP	3 S	1707.6	1709.9	15.0	13.0			0
	9400	HUAN	20 GRF	1737.4	1803.1	55.1	6.8	4.8		0
	2800	OTTA	1 S	1958.0	1959.2	3.0	2.6	1.0		
	2695	PENT	260 FAL	2005.0	2100	55.0	7.8	3.9		
21	260	ONDR	44 NS	0845.0E		295.0D	57	3		
	9100	GORK	21 GRF	0611.7	0709.5	347.0E	22			
	950	GORK	40 F	0632.0	0659.6	48.6	33			
	2950	GORK	21 GRF	0632.7	0649.8	257.0	11.6			
	650	GORK		0640.0	0652.7		22			
	650	GORK	22 GRF	0640.0	0650.3	22.0	30	6		
	650	GORK		0640.0	0654.8		17			
	650	GORK		0640.0	0656.9		19			
	606	MANI	4 S/F	0648.6	0650.1	12.2	33.6	11.2		
	1415	MANI	4 S/F	0649.2	0654.6	11.1	10.1	3.4		
	500	HIRA	46 C	0649.4	0650.2	9.6	46	15		0
	4995	MANI	4 S/F	0650.1	0654.6	7.9	91.0	30.3		
	100	HIRA	46 C	0650.7	0655.7	14.0	910	90		
	100	HIRA		0650.7	0651.0		230			
	100	HIRA		0650.7	0700.1		200			
	2695	MANI	4 S/F	0650.9	0654.5	9.4	79.9	26.6		
	3100	CRIM		0651.0	0655.0		73			
	3100	CRIM	7 C	0651.0	0653.0	9.0	25	24		
	2950	GORK		0651.4	0654.8		89			
	2950	GORK	46 C	0651.4	0652.5	8.0	21.5			
	8800	MANI	4 S/F	0653.8	0654.7	4.4	84.4	28.1		
	5730	IRKU	2 S	0654.2	0655.0	7.0	38	14		L
	9100	GORK	4 SF	0654.4	0655.3	3.3	39	19		
	228	HARS	45 C	0857.9	0901.6	7.9	280	115		
	536	ONDR	3 S	0954.3	0954.3	.3	12			
	2650	DWIN	45 C	1101.0	1105	6.0	370	50		

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

NOVEMBER 1979

DAY OF MONTH	FREQUENCY	STATION	TYPE		STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} MEAN	INT	POLARIZATION OR REMARKS
21	536	ONDR	42	SER	1224.0	1242.7	24.0	15			
	7000	SAOP	40	F	1252.0		74.0				
	2800	OTTA	20	GRF	1350.0	1430	125.0	4.2	2.4		
	2800	OTTA	20	GRF	1605.0	1607	45.0	2.4	1.2		
22	260	ONDR	44	NS	0810.0E		338.0D	40	2		
	200	HIRA	44	NS	2120.0E	2211	280.0D	20	10		WR
	1415	MANI		S	0732.3	0732.4	3.0	3 52.9	10.1		
	606	MANI	4	S/F	0733.3	0733.6	1.0	41.8	13.9		
	228	HARS	45	C	0946.4	0946.4	.4	275	140		
	930	BORD	8	S	1051.0	1051.1	.2	21	2		
	33	UPIC	42	SER	1116.6	1151.5	83.6				
	29	UPIC	42	SER	1116.7	1127.2	86.2				
	7000	SAOP	40	F	1331.0		269.0				
	9400	HUAN	20	GRF	1751.5	1802.7	64.0	5.0	4.7		R
23	260	ONDR	44	NS	0800.0E		351.0D	11			
	200	HIRA	44	NS	2121.0E	2321	320.0D	10	5		WR
	100	HIRA	46	C	0502.0	0502.2	.9	105	60		
	536	ONDR	8	S	0906.4	0906.4	.3	35			
	3100	CRIM	3	S	1006.0	1011.5	20.0	60	20		
	7000	SAOP	45	C	1209.5	1211.4	5.2	165.0			IL
	2650	DWIN	45	C	1210.0	1211	7.0	60	30		
	930	BORD	3	S	1210.0	1212.2	9.0	28	10		
	10715	DWIN	45	C	1210.0	1211	7.0	100	40		
	10400	BERN	46		1210.2	1211.4	8.0	123.0			
	3000	POTS	4	S/F	1210.5	1211.5U	7.5	56 U			
	9500	POTS	4	S/F	1210.5	1211.2	11.0	122			
	9400	HUAN			1210.7	1211.8		167.6			
	9400	HUAN	45	C	1210.7	1211.4	6.4	174.8	69.8		L
	1470	POTS	3	S	1210.8	1212.3	16.0	58			
	10400	BERN	3		1233.1	1233.9	2.0	12.0			
	2800	OTTA	20	GRF	1335.0	1420	140.0	5.6	2.8		
	2800	OTTA	260	FAL	1720.0	1750	30.0	-3.8	-2.0		
24	260	ONDR	44	NS	0800.0E		360.0D	21			
	200	HIRA	43	NS	2240.0	0540	480.0D	35	5		WR
	2695	MANI	3	S	0258.1	0259.4	6.5	11.4	3.8		
	4995	MANI	4	S/F	0258.1	0259.1	6.5	33.3	11.1		
	1415	MANI	4	S/F	0258.2	0300.8	4.0	63.3	21.1		
	606	MANI	4	S/F	0258.9	0259.1	3.4	86.4	28.8		
	5730	IRKU	21	GRF	0259.0	0259.5	6.0	26	10		L
	8800	MANI	4	S/F	0259.0	0259.3	4.7	51.0	17.0		
	17000	NOBE	3	S	0259.4	0300.0	4.8	28			0
	9100	GORK	1	S	0605.6	0606.0	.8	8	4		
	2950	GORK	1	S	0605.7	0606.0	5.3	8.7	4		
	9100	GORK	22	GRF	0608.1	0608.8	14.7	7			
	202	IZMI	41	F	0659.5	0700.0	2.0	235			
	202	IZMI	41	F	0716.2	0716.7	1.5	150			
	536	ONDR	8	S	0835.4	0835.4	.3	34			
	113	POTS	41	F	0946.6	0946.6	1.1	250	3		
	3000	POTS	20	GRF	1012.0	1017.3	18.0	6.2			
	1470	POTS	20	GRF	1014.0	1017.4	4.0	4.7			
	2950	GORK	1	S	1016.0	1017.0	2.0	4.5	2		
	9100	GORK	20	GRF	1016.1	1020.2	10.8	4.5			
	202	IZMI	41	F	1037.0	1039.5	9.5	2000			
	2800	OTTA	20	GRF	1550.0	1650	120.0	3.8	2.0		
	2800	OTTA	260	FAL	1800.0	1835	35.0	-3.4	-1.7		
25	260	ONDR	44	NS	0842.0E		321.0D	44	3		
	113	POTS	27	RF	0728.0E	0814	312.0D	15			
	113	POTS	4	S/F	1003.1	1006.8	5.8	1200	60		
	127	TORN	47	GB	1004.4	1006.8	4.6	1900	500		
	228	HARS	45	C	1004.6	1006.4	3.6	115	45		
	202	IZMI	41	F	1005.0	1006.5	3.7	330			
	2950	GORK	1	S	1005.1	1006.9	3.8	8.4	4		
	1470	POTS	3	S	1005.5	1007.0	3.0	9.4			
	3000	POTS	3	S	1005.5	1007.0	3.0	10			
	2800	OTTA	20	GRF	1350.0	1425	75.0	3.4			
	2800	OTTA	22	GRF	1525.0		165.0	3.4			
26	260	ONDR	42	SER	1040.0	1044.4	24.0	19			
	536	ONDR	3	S	1043.0	1043	.2	29			
	930	BORD	41	F	1212.8	1213.3	.5	24	2		
	9400	HUAN	20	GRF	1743.7	1843.8	84.6	11.3	5.4		0
29	606	MANI	4	S/F	0523.0	0523.3	1.6	110.7	36.9		
	1415	MANI	2	S/F	0523.0	0523.3	1.6	6.4	2.1		
	2695	PENT	21	GRF	2040.0	2120	60.0D	4.2			
	2800	OTTA	2	S/F	2051.0	2052.5	3.0	6.6	3.3		
	9400	HUAN	1	S	2051.3	2052.8	4.0	8.2	4.1		0
30	260	ONDR	43	NS	0920.0		270.0D	27			
	113	POTS	41	F	1202.3	1203.4	1.2	100	1		
	930	BORD	41	F	1514.5	1514.8	.5	105	2		
	930	BORD	41	F	1547.7	1548.1	.5	40	2		
	2800	OTTA	20	GRF	1735.0	1815	85.0	2.2	1.1		

Reports are received routinely from the following observatories:

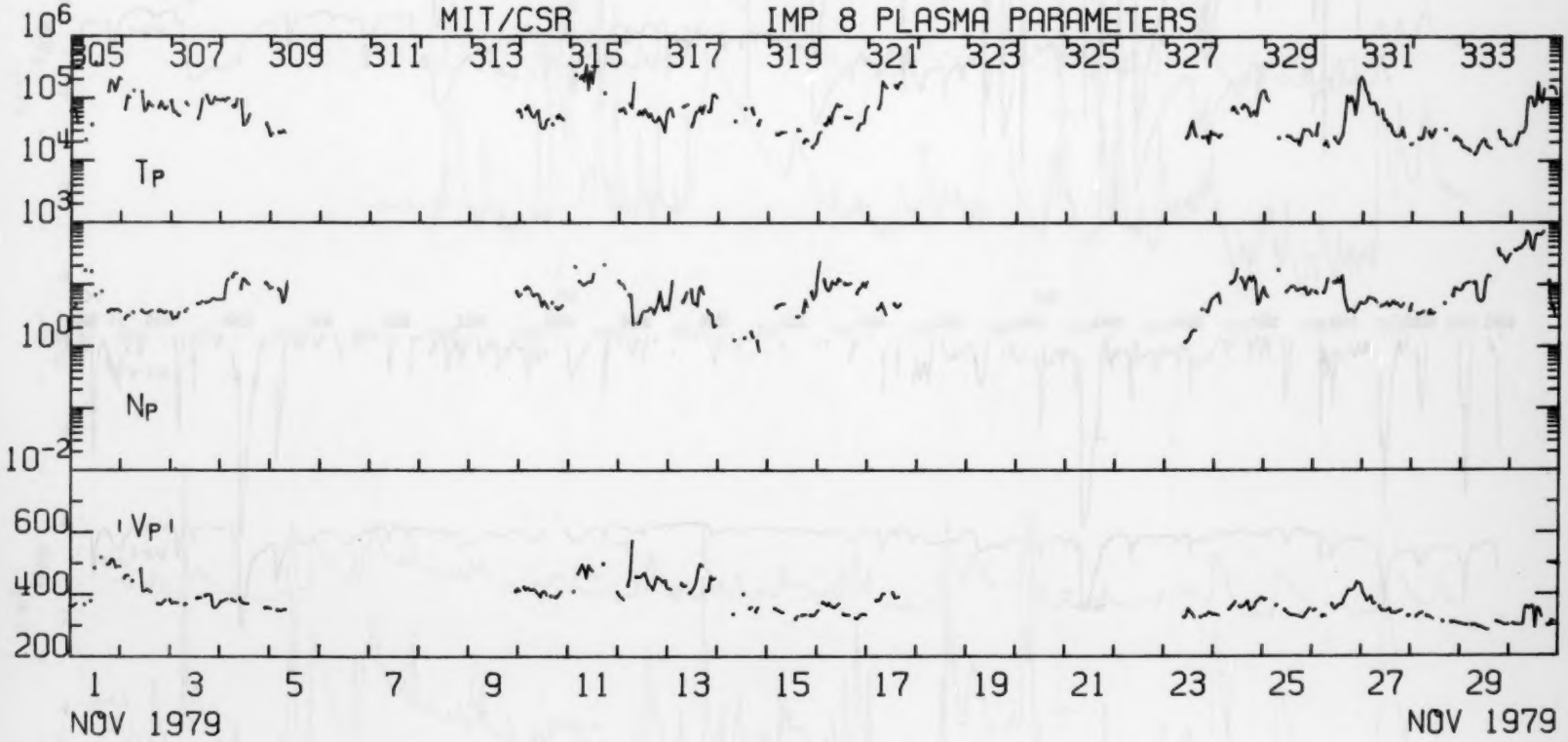
ARCE = Arcetri
BERN = Berne
BORD = Bordeaux
CRIM = Crimea
DWIN = Dwingeloo
GORK = Gorky
HARS = Harestua
HIRA = Hiraiso
HUAN = Hanncayo
IRKU = Irkutsk
IZMI = IZMIRAN
KISV = Kislovodsk
MANI = Manila
NAGO = Nagoya
NOBE = Nobeyama
ONDR = Ondrejov
OTTA = Ottawa
PENT = Penticton
POTS = Potsdam
SOAP = Sao Paulo
SOMR = Sagamore Hill
SYDN = Sydney
TORN = Torun
TYKW = Toyokawe
TRST = Trieste
UPIC = Upice
VORO = Voroshilov

Explanation of Type Codes:

1 Simple 1
2 Simple 1F
3 Simple 2
4 Simple 2F
5 Simple
6 Minor
7 Minor +
8 Spike
20 Simple 3
21 Simple 3A
22 Simple 3F
23 Simple 3AF
24 Rise
25 Rise A
26 Fall
27 Rise and Fall
28 Precursor
29 Post Burst Increase
30 Post Burst Increase A
31 Post Burst Decrease
32 Absorption
40 Fluctuation
41 Group of Bursts
42 Series of Bursts
43 Onset of Noise Storm
44 Noise Storm in Progress
45 Complex
46 Complex F
47 Great Burst
48 Major
49 Major +

IMP 8 SOLAR WIND PLASMA

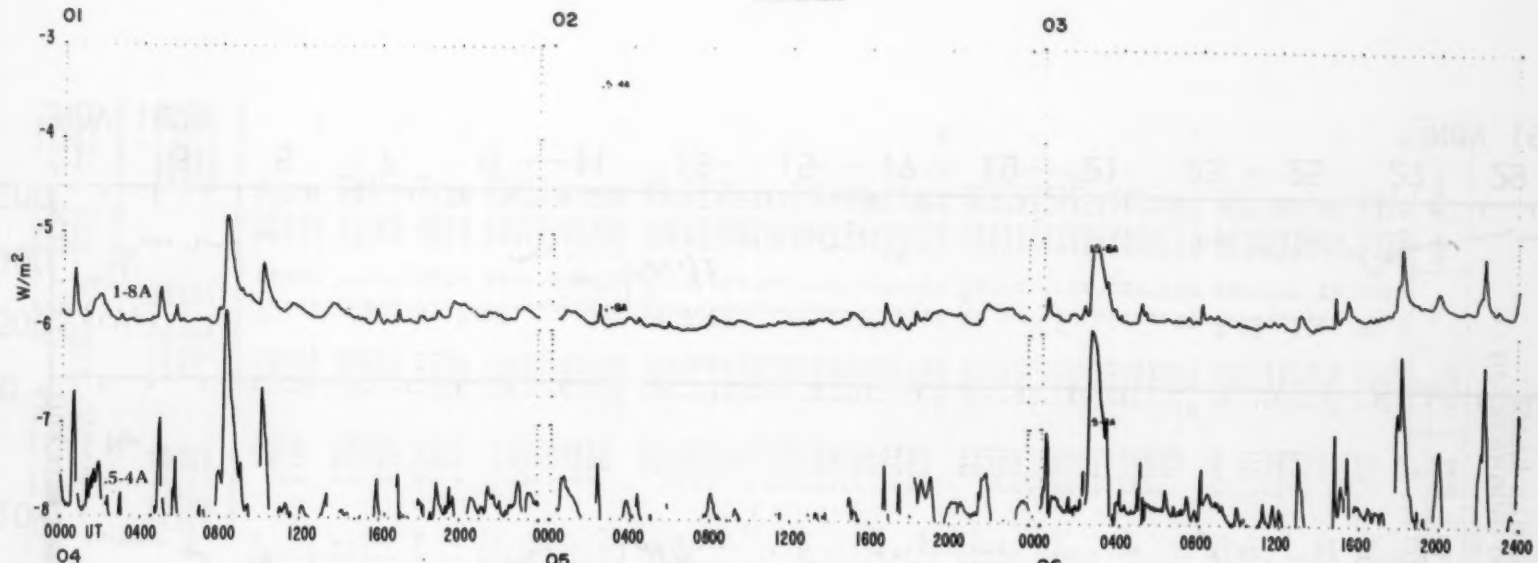
NOVEMBER 1979

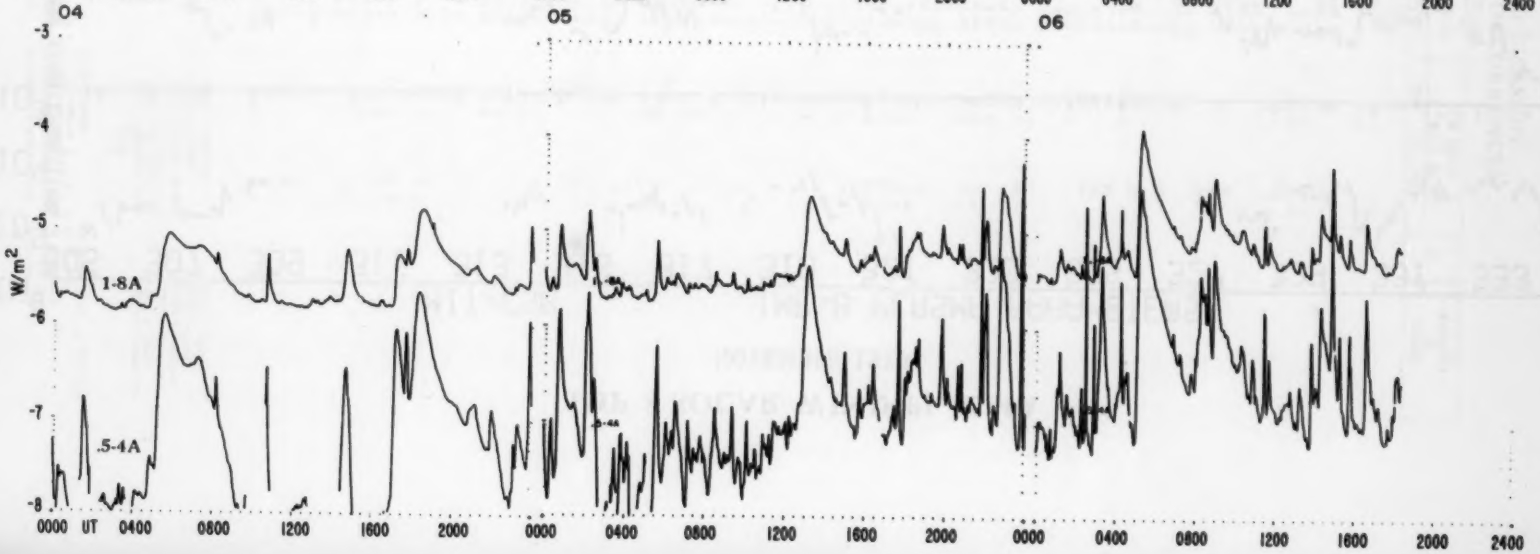


25 Nov 79

SMS-GOES X-RAYS

NOVEMBER 1979



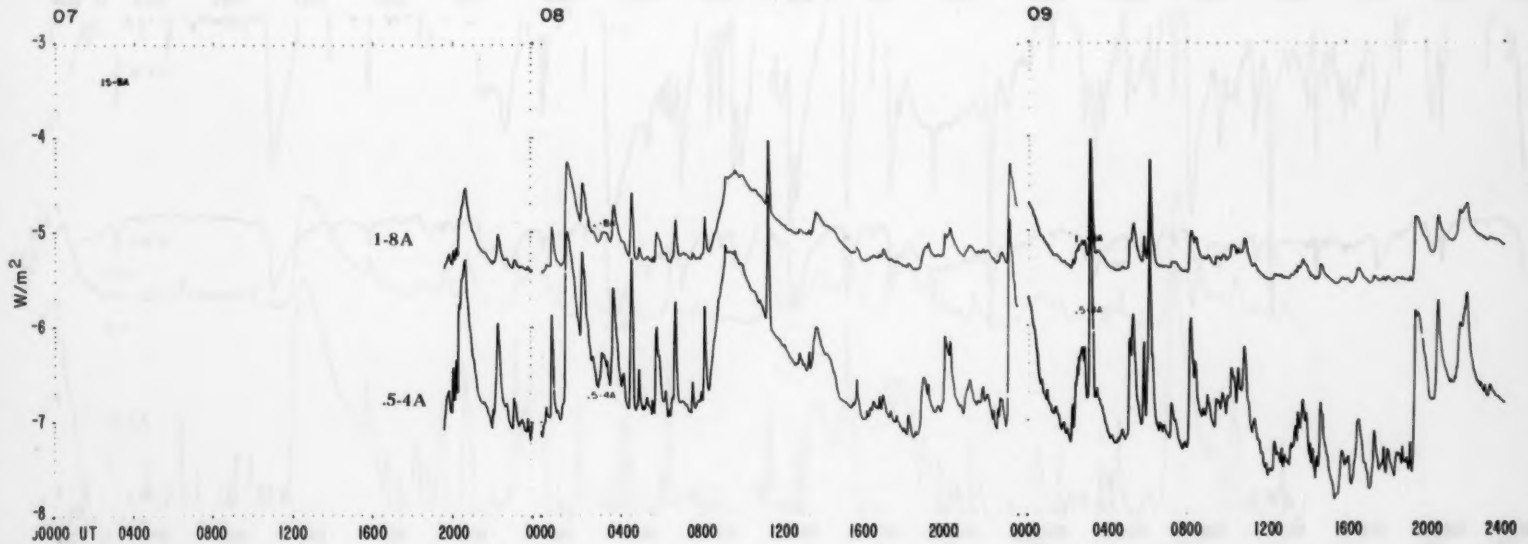


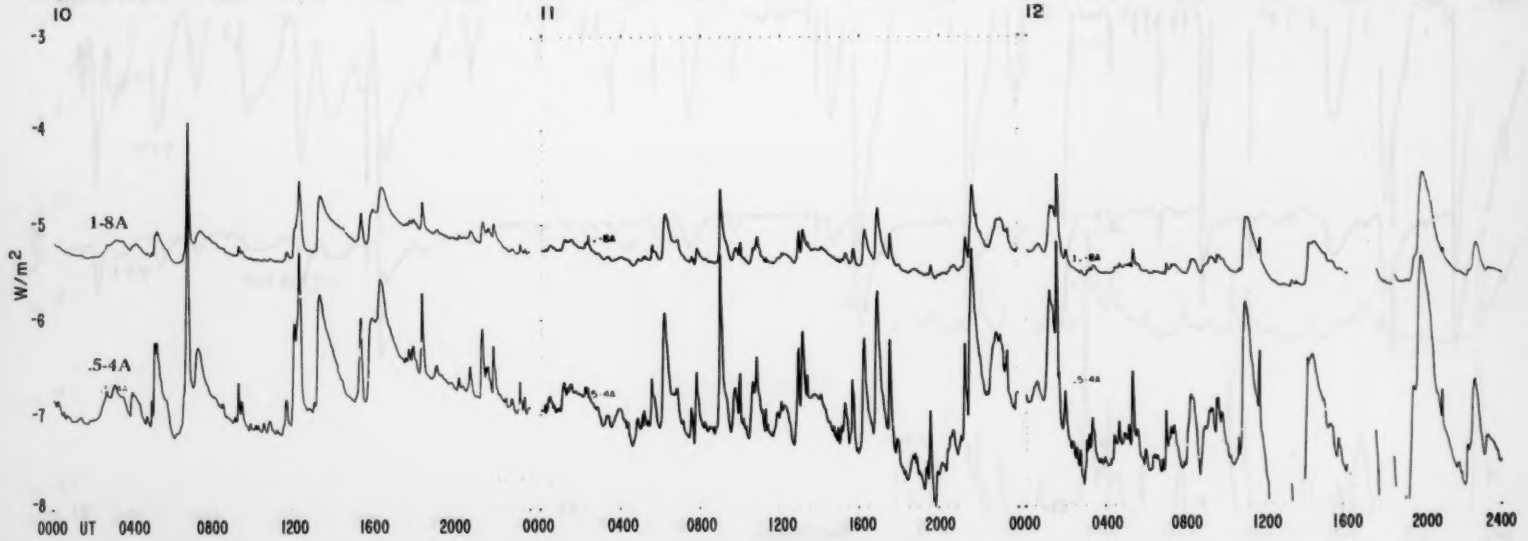
SMS-GOES X-RAYS

NOVEMBER 1979

SMS-GOES X-RAYS

NOVEMBER 1979

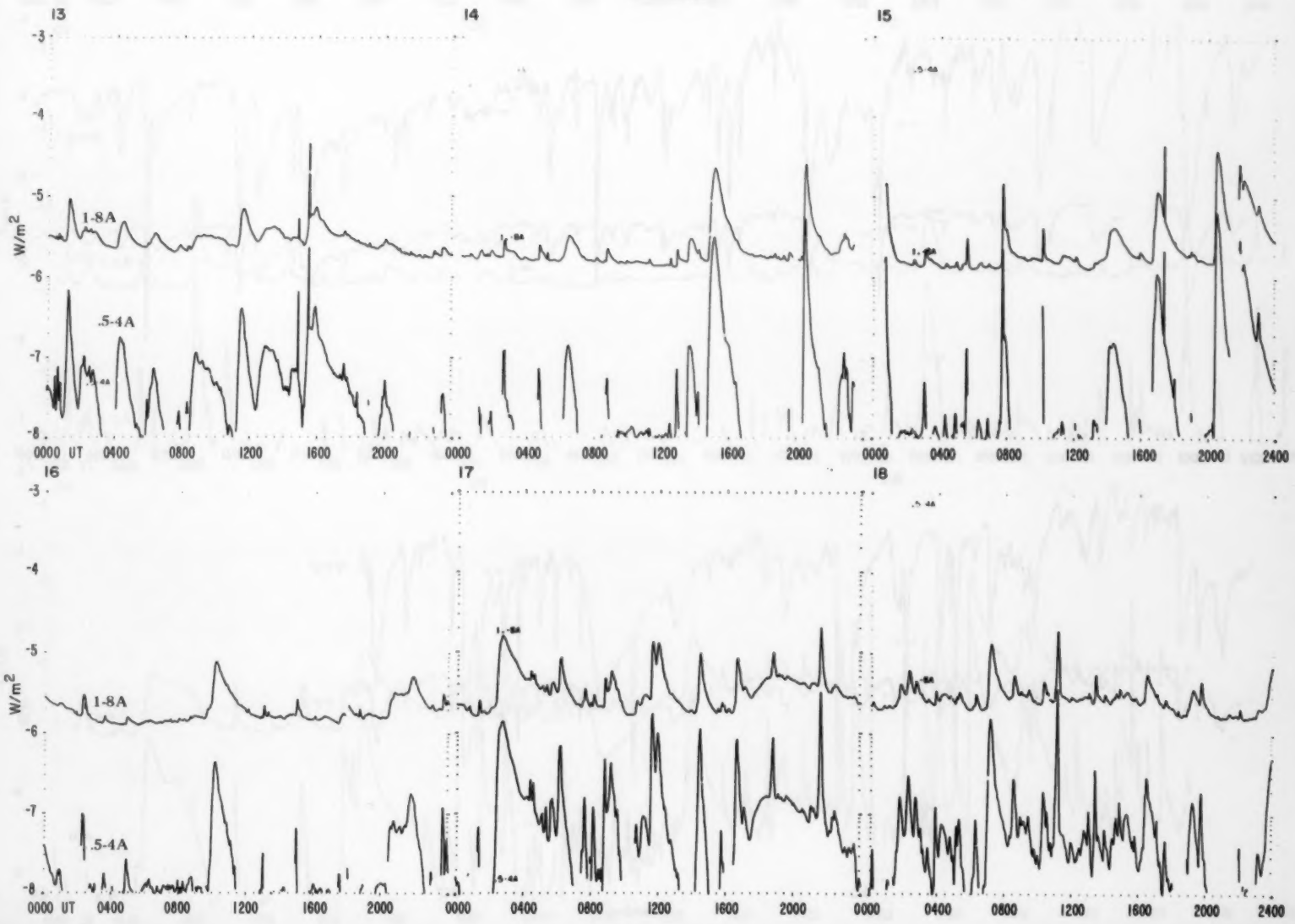




27 Nov 79

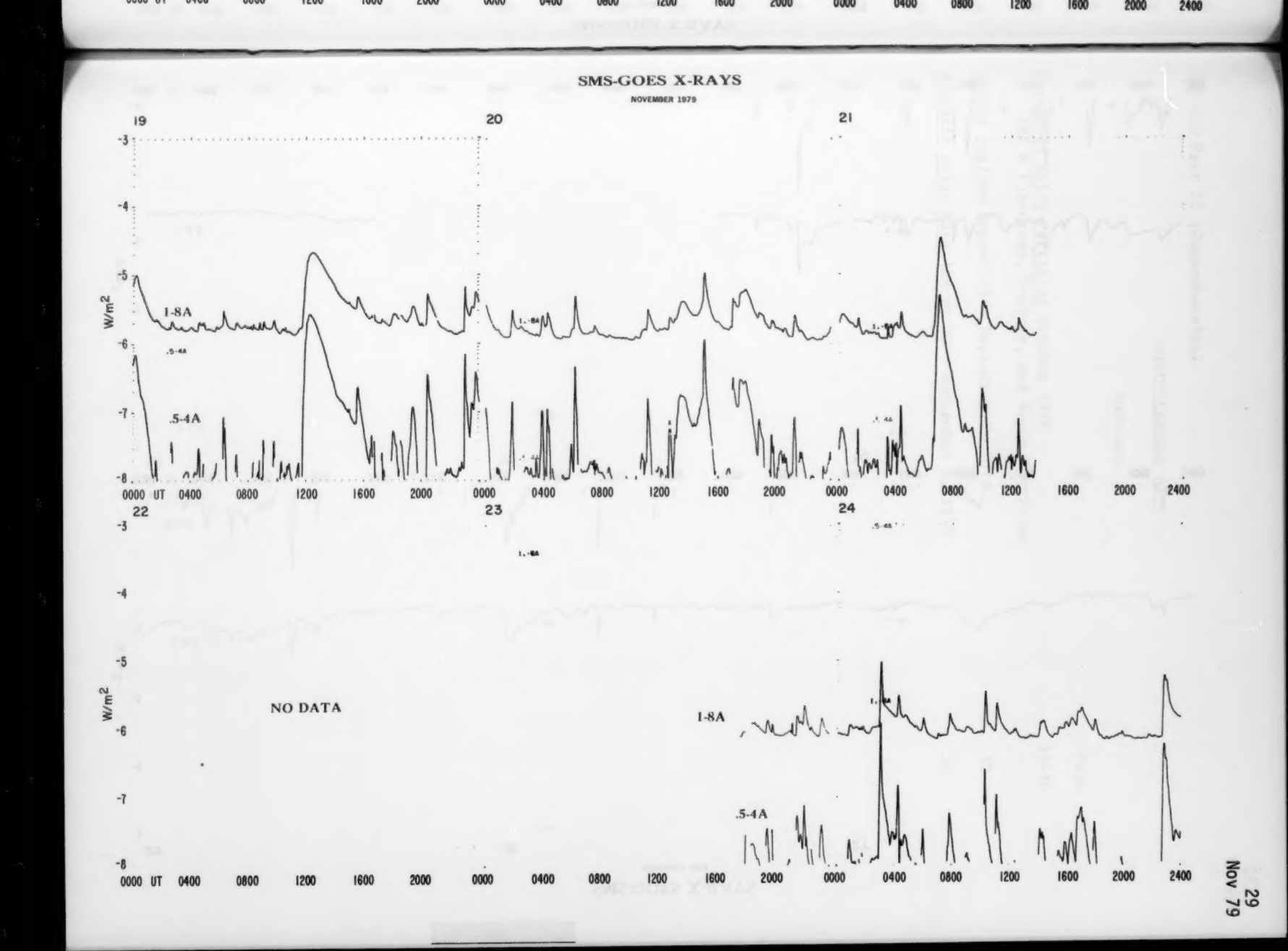
SMS-GOES X-RAYS

NOVEMBER 1979



SMS-GOES X-RAYS

NOVEMBER 1979


SMS-GOES X-RAYS
NOVEMBER 1979
19
20
21
22
23
24
W/m2
-3
-4
-5
-6
-7
-8
1-8A
.5-4A
0000 UT
0400
0800
1200
1600
2000
0000
0400
0800
1200
1600
2000
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0400
0800
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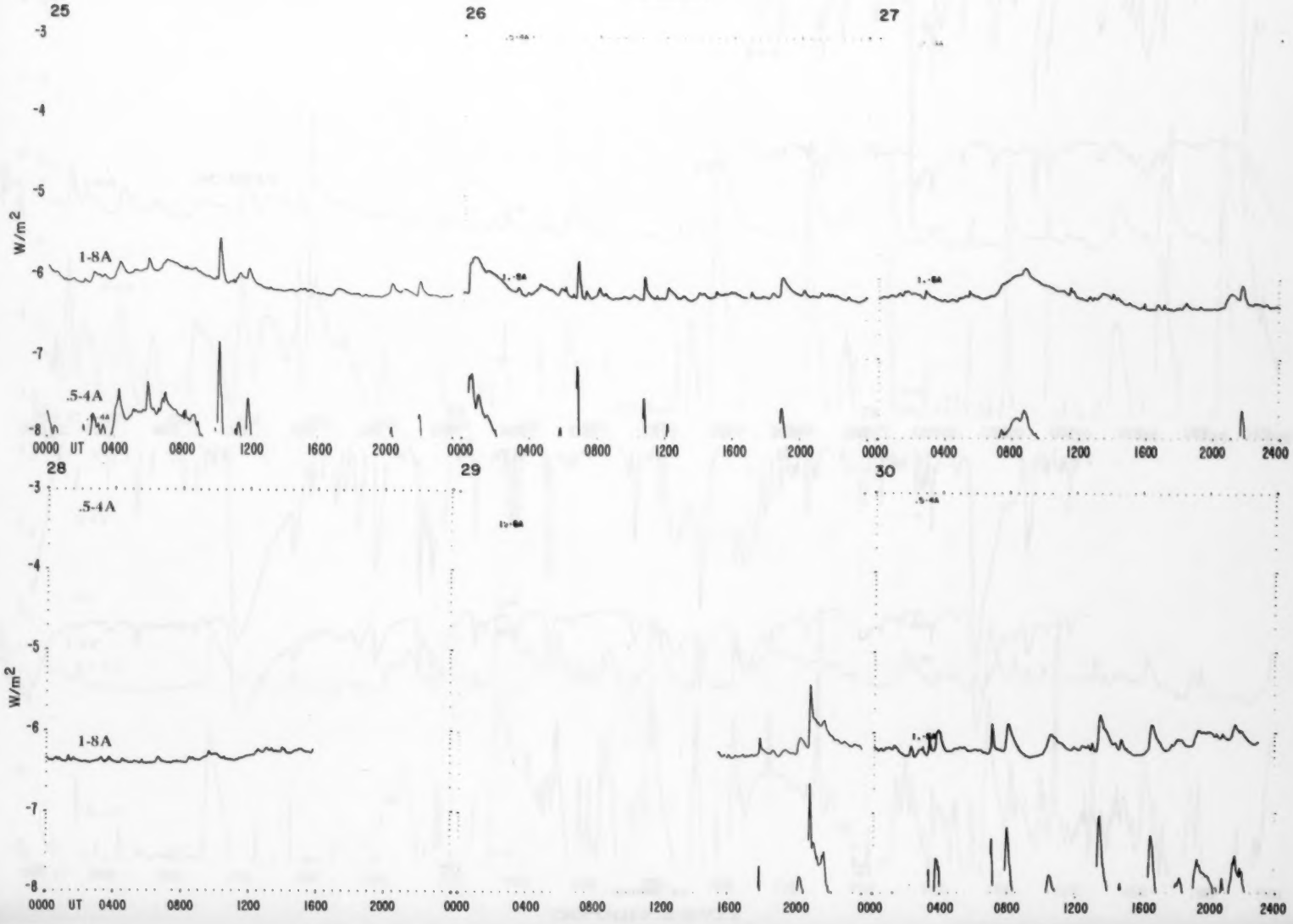
NO DATA
29 Nov 79

SMS-GOES X-RAYS

NOVEMBER 1979



SGD 429 Part II (Comprehensive)

MISCELLANEOUS DATA

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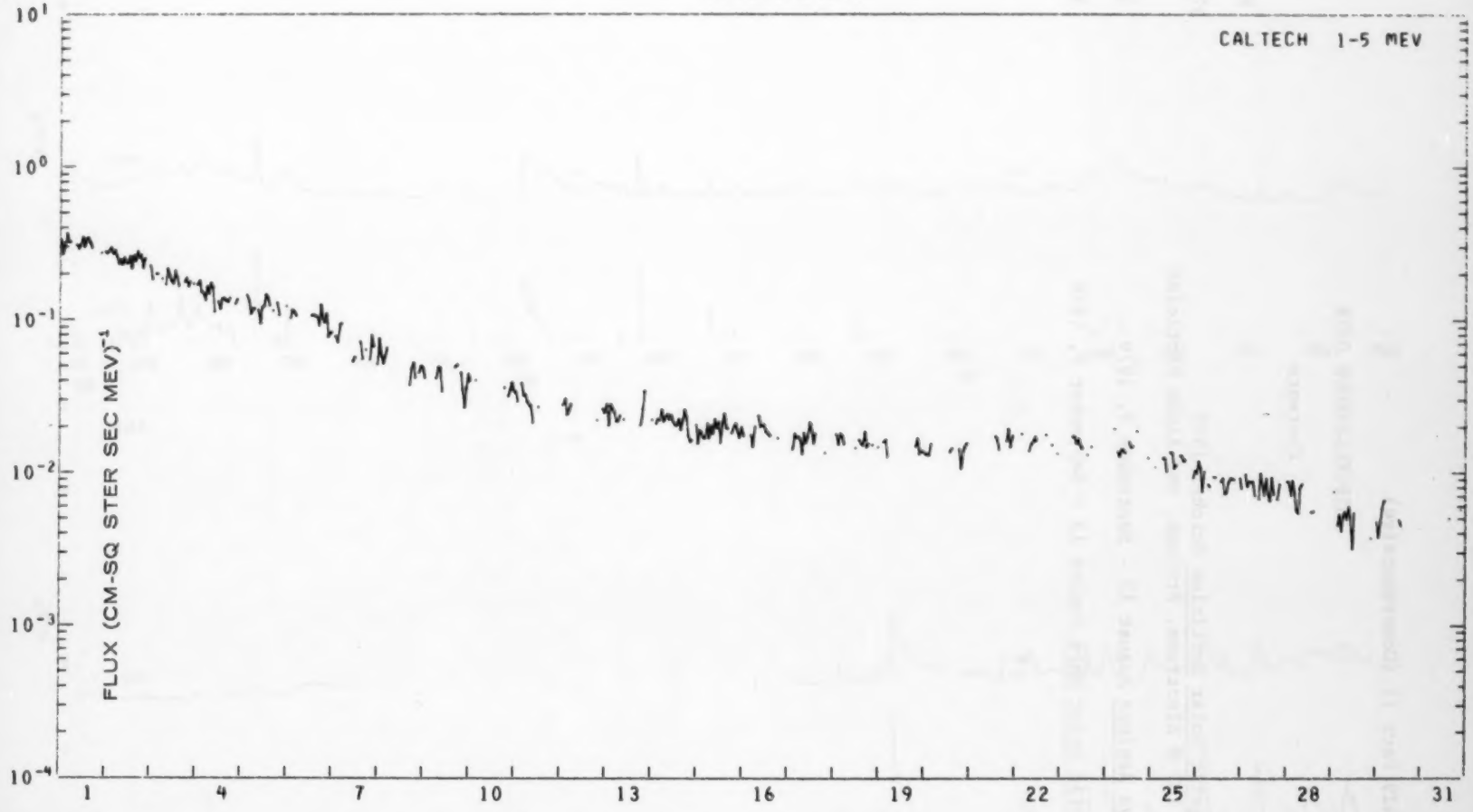
Active Regions August 13 - September 9, 1979	37
Synoptic Solar Maps August 13 - September 9, 1979	38

IMP 8 ELECTRONS

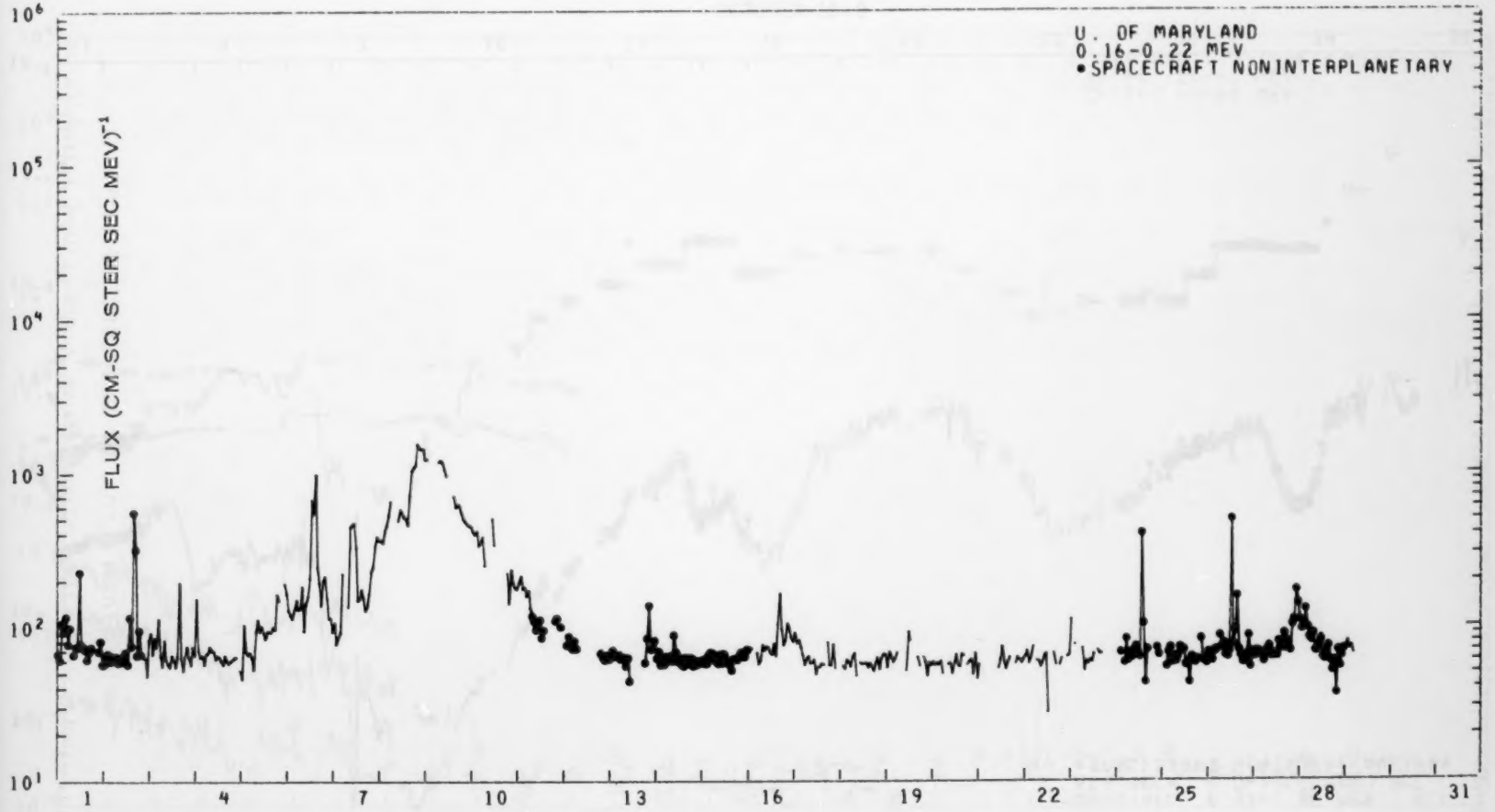
OCTOBER 1979



IMP 8 LOW ENERGY PROTONS

IMP 8 LOW ENERGY PROTONS

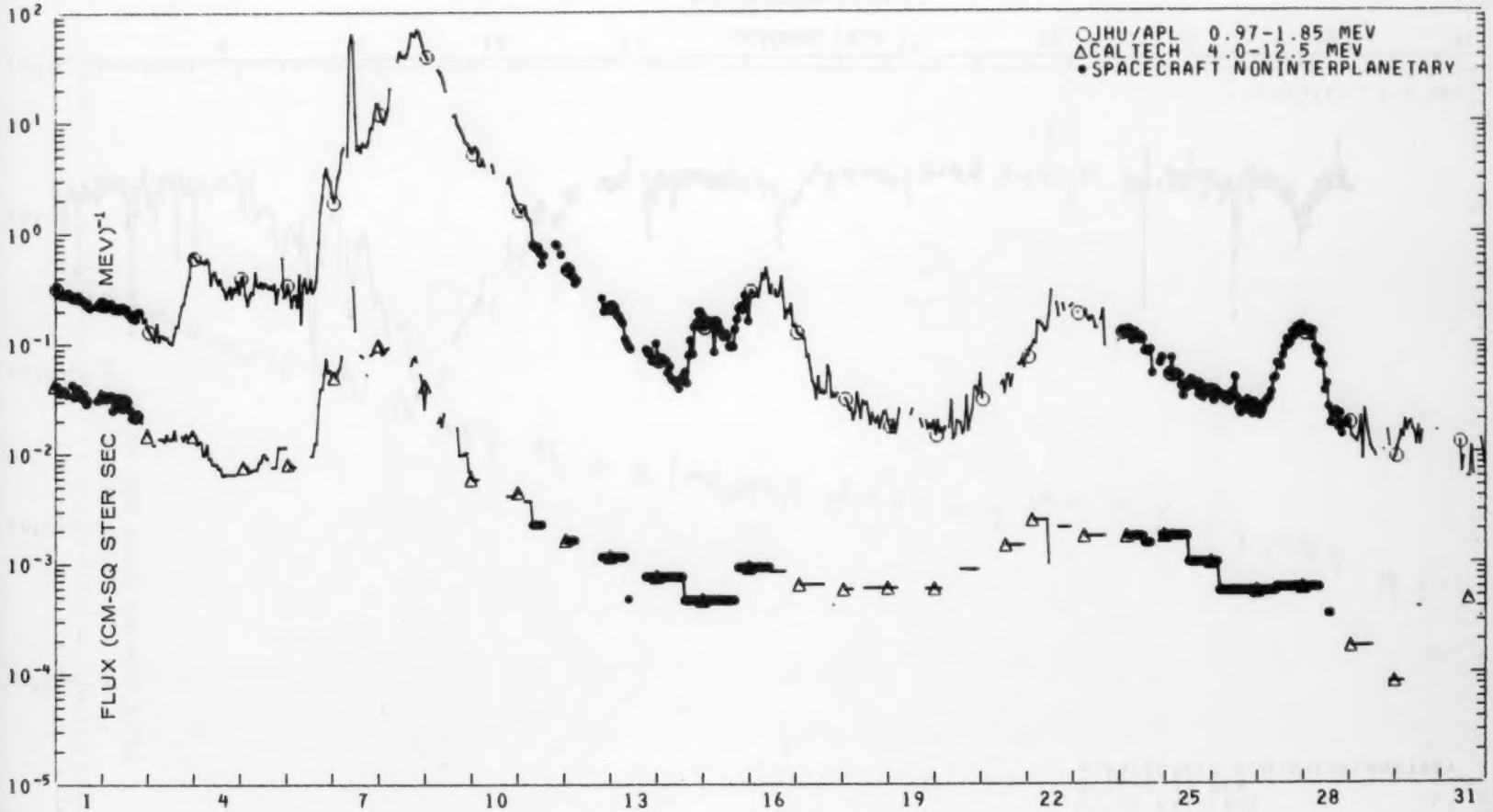
OCTOBER 1979



33
Misc
Oct 79

IMP 8 INTERMEDIATE ENERGY PROTONS

OCTOBER 1979



IMP 8 HIGH ENERGY PROTONS

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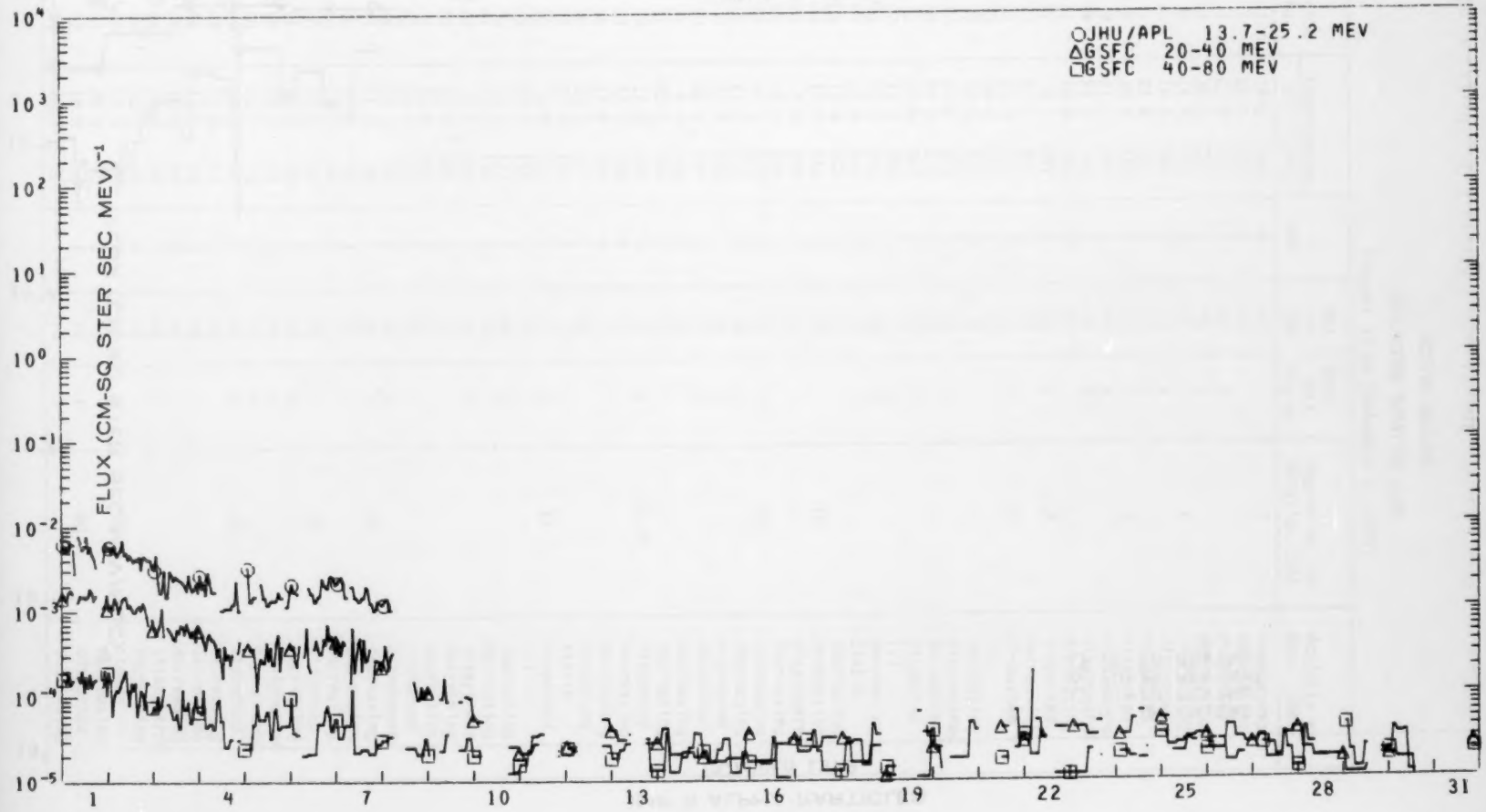
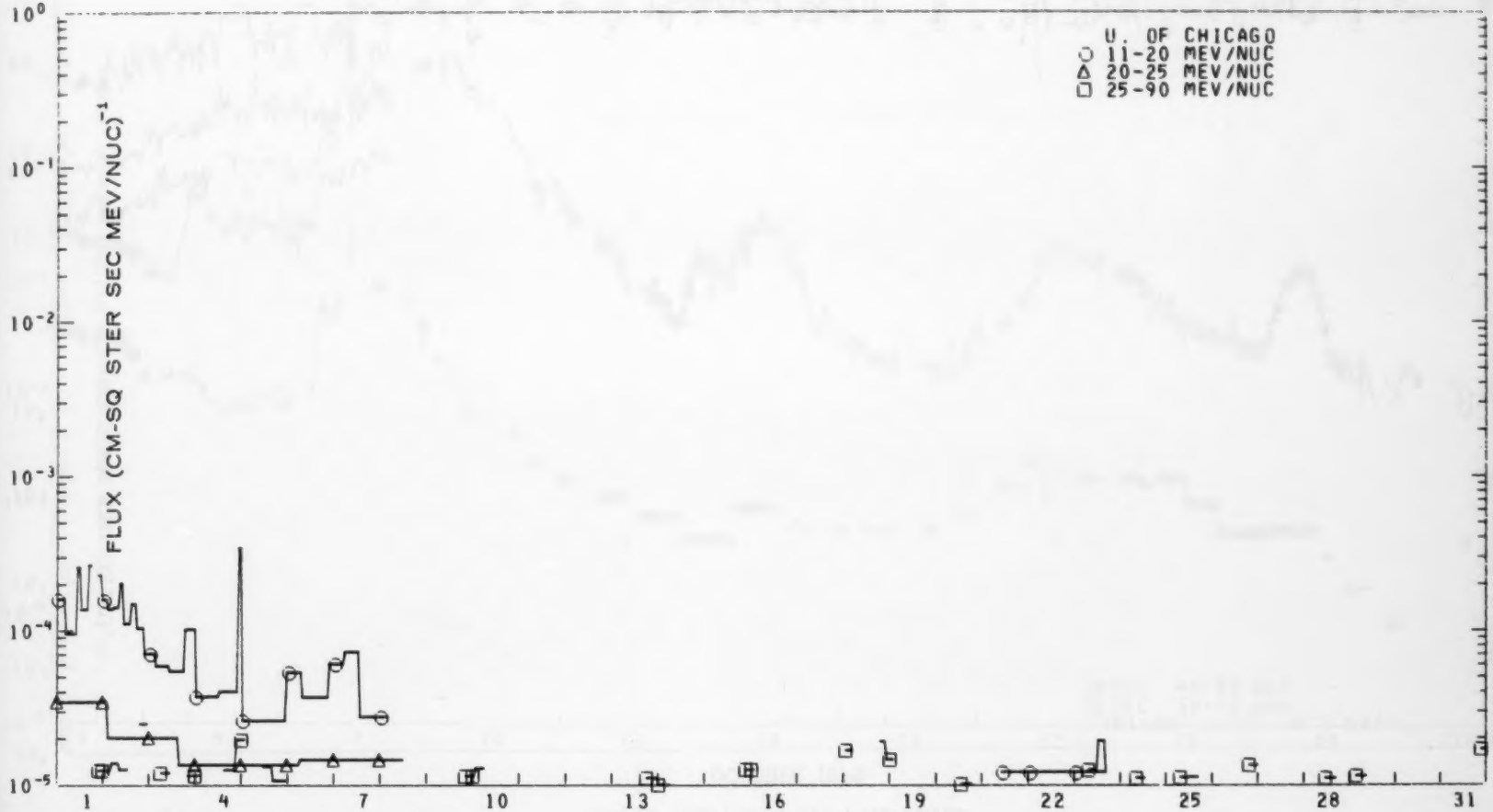


35
Misc
Oct 79

IMP 8 ALPHA PARTICLES
OCTOBER 1979



ACTIVE REGIONS

CARRINGTON ROTATION 1685

(August 13 to September 9, 1979)

Region No.	Coordinates Lat	Long.	IMP	Age at CMP	Spot-less Region	Region No. in Rotation 1684	Activity at West Limb
1	14°N	354°	4	>6		1	decreasing
2	26 S	354	2	>6			decreasing
3	21 N	351	1	>6	x		dispersed
4	32 N	351	1	>6	x		decreasing
5	14 N	343	5	>6		6	increasing
6	19 S	336	1	>6	x		dispersed
7	27 N	331	1	+6	x		dispersed
8	29 N	324	1	>6	x	9	dispersed
9	21 S	323	1	+5	x		disappeared
10	23 S	298	1	>6	x		disappeared
11	16 N	296	2	>6			decreasing
12	8 S	292	1	>6	x	14	dispersed
13	25 S	291	3	+4			decreasing
14	31 N	287	1	>6	x	13	dispersed
15	16 S	285	2	-2			(?)
16	26 N	277	3	0			decreasing
17	11 S	276	1	>6	x		disappeared
18	25 S	273	7	>6			decreasing
19	22 N	267	1	+6	x		dispersed
20	13 S	267	1	-6	x		(?)
21	17 S	262	1	>6	x		decreasing
22	27 N	262	2	-1			stable
23	17 N	254	3	>6			decreasing
24	17 S	248	3	>6		18	decreasing
25	7 N	239	2	>6			disappeared
26	16 S	236	2	+2			decreasing
27	14 S	222	3	>6		20	decreasing
28	21 S	210	1	>6	x		decreasing
29	27 N	202	1	>6	x		dispersed
30	22 S	194	1	-1	x		dispersed
31	4 N	193	9	>6			decreasing
32	10 S	190	2	+2			decreasing
33	17 N	190	1	>6	x	25-26	dispersed
34	34 S	188	6	>6			decreasing
35	17 N	181	4	+2			decreasing
36	22 S	163	1	>6			dispersed
37	17 N	156	2	0			stable
38	4 N	151	1	>6	x	37	dispersed
39	23 S	150	2	>6			(?)
40	29 N	137	1	>6	x		decreasing
41	29 S	130	2	>6			decreasing
42	7 N	110	1	+6	x		disappeared
43	22 N	105	2	>6			decreasing
44	12 N	102	2	+1			decreasing
45	20 S	102	1	>6	x		dispersed
46	25 S	99	2	+2	x		disappeared
47	21 N	98	1	>6	x	47	decreasing
48	16 N	95	4	>6			decreasing
49	22 S	94	2	+1			decreasing
50	15 S	80	1	>6	x	48	dispersed
51	10 N	80	1	>6	x		decreasing
52	30 S	76	1	>6	x		disappeared
53	31 S	72	1	+3	x		disappeared
54	27 N	69	1	>6	x	49	dispersed
55	21 N	63	5	>6			decreasing
56	11 N	62	3	>6	x		decreasing
57	13 N	50	5	+4			decreasing
58	20 N	40	1	+3	x		disappeared
59	20 S	35	4	>6			decreasing
60	27 S	25	1	>6		56	stable
61	28 S	12	2	-2			decreasing
62	15 N	3	1	>6	x	60	dispersed
63	15 S	2	1	>6	x		decreasing

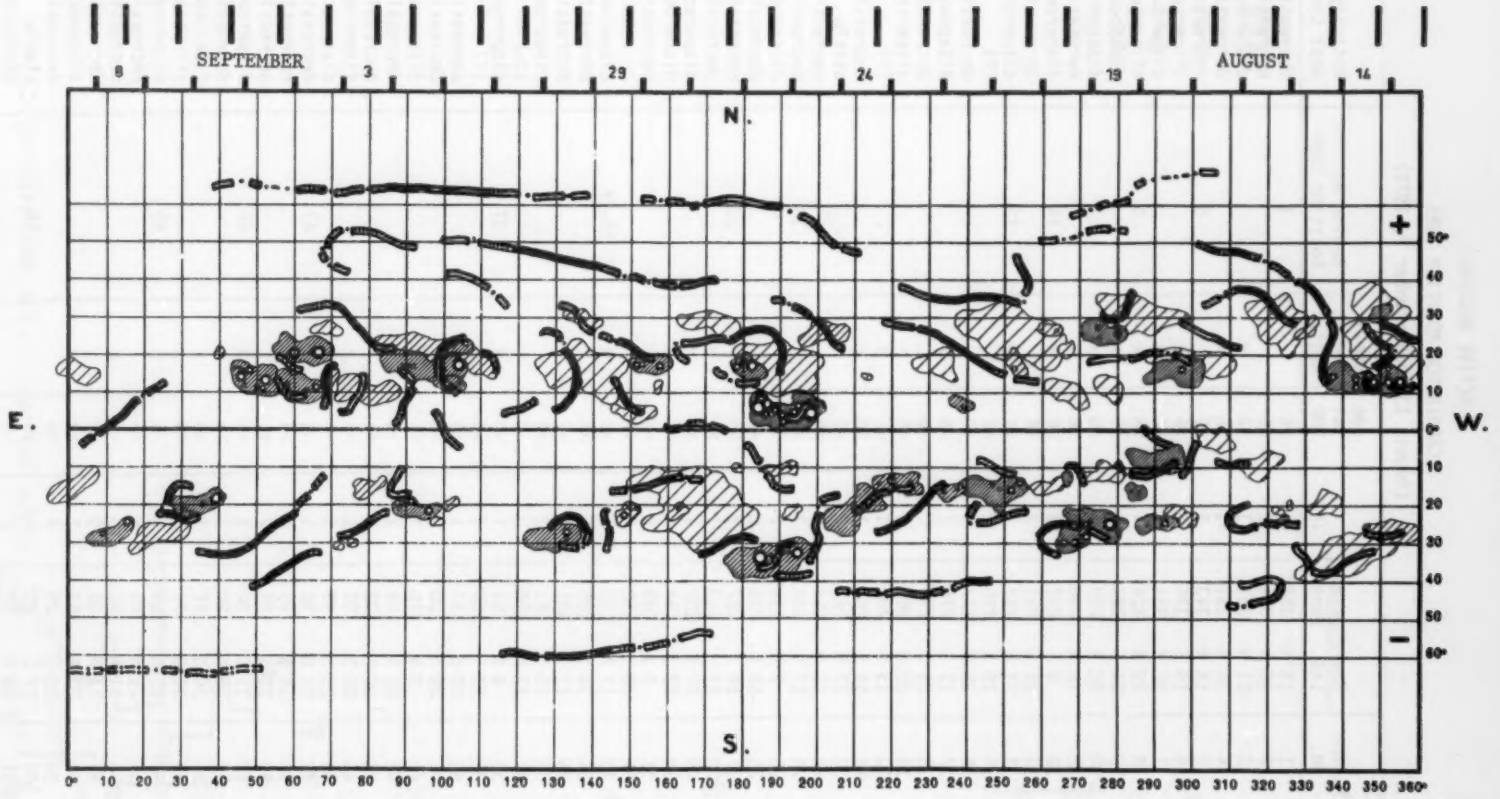
38
Misc
Aug-Sep 79

SYNOPTIC SOLAR MAP

CARRINGTON ROTATION 1684

AUGUST 13 to SEPTEMBER 9, 1979

MEUDON OBSERVATORY



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